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1. Document ID: US 6027893 A

Entry 1 of 34 File: USPT Feb 22, 2000

US-PAT-NO: 6027893
DOCUMENT-IDENTIFIER: US 6027893 A

TITLE: Method of identifying a nucleic acid using triple helix formation of adjacently annealed probes

DATE-ISSUED: February 22, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
.O slashed.rum; Henrik	Vorlose	N/A	N/A	DKX
Naesby; Michael	Valby	N/A	N/A	DKX

US-CL-CURRENT: 435/6; 435/91.1, 536/24.3, 536/24.31, 536/24.32

ABSTRACT:

A method for determining a nucleic acid A, comprising the formation of a complex, including two molecules capable of hybridizing to A and of participating in formation of a triplex structure with an additional nucleic acid or nucleic acid analogue is useful for sensitive and specific determination.
24 Claims, 4 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 4

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image

2. Document ID: US 6020132 A

Entry 2 of 34 File: USPT Feb 1, 2000

US-PAT-NO: 6020132
DOCUMENT-IDENTIFIER: US 6020132 A

TITLE: Method of analysis using signal amplification

DATE-ISSUED: February 1, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
.O slashed.rum; Henrik	Vorlose	N/A	N/A	DKX
Koch; Troels	Kobenhaven	N/A	N/A	DKX
Borre; Martin	Hedehusene	N/A	N/A	DKX
Hansen; Henrik Frydenlund	Rodovre	N/A	N/A	DKX

US-CL-CURRENT: 435/6; 435/91.1, 536/24.3, 536/24.31, 536/24.32

ABSTRACT:

A method for determining a molecule A comprising a sample of molecules capable of participating in formation of triplex structures is useful for sensitive determination. The principle can be used to determine any kind of analytes.
23 Claims, 15 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 13

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image

3. Document ID: US 6013447 A

Entry 3 of 34 File: USPT Jan 11, 2000

US-PAT-NO: 6013447
DOCUMENT-IDENTIFIER: US 6013447 A

TITLE: Random intracellular method for obtaining optimally active nucleic acid molecules

DATE-ISSUED: January 11, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Nilsen; Timothy W.	Russell	OH	N/A	N/A
Robertson; Hugh D.	New York	NY	N/A	N/A
Kindt; Thomas J.	Bethesda	MD	N/A	N/A

US-CL-CURRENT: 435/6; 435/320.1, 435/455, 435/69.1, 435/91.31, 536/23.1, 536/23.4, 536/24.1, 536/24.5

ABSTRACT:

Vectors and a method for the identification of affector RNA molecules, such as ribozymes, external guide sequences, anti-sense RNA, and triple helix-forming RNA, that inhibit expression of target RNA molecules are disclosed. The method identifies functional affector RNA molecules by screening or selecting for those RNA molecules that inhibit expression of a fusion transcript, which includes the sequence of an RNA molecule of interest, from a library of potential affector RNA molecules. The vectors include a reporter gene encoding the fusion transcript including the RNA molecule of interest and RNA encoding the reporter protein. The vectors also include a second reporter gene encoding a second reporter protein. Expression of the second reporter protein can be used both to detect transformation or transfection of the vector into cells and as a control for effects on the expression of the first reporter protein that are not due to inhibition of expression of the RNA molecule of interest. The vector also encodes an affector RNA molecule targeted to the RNA of interest. A key advantage of the disclosed method and vectors is the assessment of inhibition of expression of an RNA of interest in an in vivo setting which will be the same or similar to the setting where identified affector molecules will be used. Another advantage of the disclosed method is that all, or a substantial number of the accessible sites in the RNA of interest can be determined in one assay. Also disclosed are affector oligomers based on affector RNA molecules identified as inhibiting the expression of an RNA of interest. The disclosed method also allows

inhibiting the expression of an RNA of interest. The disclosed method also allows direct comparison of the inhibitory activities of different affector RNA molecules directed to different target sites.
34 Claims, 3 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 3

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image

4. Document ID: US 6010849 A

Entry 4 of 34 File: USPT Jan 4, 2000

US-PAT-NO: 6010849
DOCUMENT-IDENTIFIER: US 6010849 A

TITLE: Sequence-directed DNA binding molecules compositions and methods

DATE-ISSUED: January 4, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Edwards; Cynthia A.	Menlo Park	CA	N/A	N/A
Cantor; Charles R.	Boston	MA	N/A	N/A
Andrews; Beth M.	Maynard	MA	N/A	N/A
Turin; Lisa M.	Redwood City	CA	N/A	N/A
Fry; Kirk E.	Palo Alto	CA	N/A	N/A

US-CL-CURRENT: 435/6; 435/7.1

ABSTRACT:

The present invention defines a DNA:protein-binding assay useful for screening libraries of synthetic or biological compounds for their ability to bind DNA test sequences. The assay is versatile in that any number of test sequences can be tested by placing the test sequence adjacent to a defined protein binding screening sequence. Binding of molecules to these test sequence changes the binding characteristics of the protein molecule to its cognate binding sequence. When such a molecule binds the test sequence the equilibrium of the DNA:protein complexes is disturbed, generating changes in the concentration of free DNA probe. Numerous exemplary target test sequences (SEQ ID NO:1 to SEQ ID NO:600) are set forth. The assay of the present invention is also useful to characterize the preferred binding sequences of any selected DNA-binding molecule.
11 Claims, 48 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 47

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image

5. Document ID: US 6004750 A

Entry 5 of 34 File: USPT Dec 21, 1999

US-PAT-NO: 6004750
DOCUMENT-IDENTIFIER: US 6004750 A

TITLE: Nucleic acid clamps

DATE-ISSUED: December 21, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Frank-Kamenetskii; Maxim D.	Brookline	MA	N/A	N/A
Veselkov; Alexei G.	Allston	MA	N/A	N/A
Demidov; Vadim V.	Allston	MA	N/A	N/A

US-CL-CURRENT: 435/6; 435/183, 435/69.1, 435/91.1, 536/23.1, 536/24.31, 536/24.32

ABSTRACT:

The invention relates to nucleic acid clamps and methods for using nucleic acid clamps, for example, to inhibit gene expression or cleavage, or to specifically cleave a target nucleic acid. Nucleic acid clamps are molecular devices which can bind nucleic acids with affinity and specificity and have a recognition sequence as small as seven bases. Nucleic acid clamps can be used to modify the effective recognition sequence of restriction endonucleases, reducing the frequency and enhancing the length of the recognition sequence, but without diminishing specificity. The invention also relates to methods for the use of nucleic acid clamps for the treatment of disorders involving abnormal gene expression.
4 Claims, 7 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 7

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image

6. Document ID: US 5986053 A

Entry 6 of 34 File: USPT Nov 16, 1999

US-PAT-NO: 5986053
DOCUMENT-IDENTIFIER: US 5986053 A

TITLE: Peptide nucleic acids complexes of two peptide nucleic acid strands and one nucleic acid strand

DATE-ISSUED: November 16, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ecker; David J.	Leucadia	CA	N/A	N/A
Buchardt; Ole	Vaerlose	N/A	N/A	DKX
Egholm; Michael	Fredriksberg	N/A	N/A	DKX
Nielsen; Peter E.	DK 2980 Koddedal	N/A	N/A	DKX
Berg; Rolf H.	Rungsted Kyst	N/A	N/A	DKX
Mollegaard; Niels E.	Virum	N/A	N/A	DKX

US-CL-CURRENT: 530/350; 536/24.5

ABSTRACT:

Peptide nucleic acids and analogues of peptide nucleic acids are used to form duplex, triplex, and other structures with nucleic acids and to modify nucleic acids. The peptide nucleic acids and analogues thereof also are used to modulate protein activity through, for example, transcription arrest, transcription initiation, and site specific cleavage of nucleic acids.
11 Claims, 44 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 40

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image

7. Document ID US 5965720 A

Entry 7 of 34 File: USPT Oct 12, 1999

US-PAT-NO: 5965720
DOCUMENT-IDENTIFIER: US 5965720 A

TITLE: Oligonucleotide N3'.fwdarw.P5' phosphoramidates

DATE-ISSUED: October 12, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Gryaznov; Sergei M.	San Mateo	CA	N/A	N/A
Schultz; Ronald G.	Urbana	MO	N/A	N/A
Chen; Jer-kang	Palo Alto	CA	N/A	N/A

US-CL-CURRENT: 536/23.1; 435/6, 436/501, 536/24.1, 536/24.3, 536/24.31, 536/24.32, 536/24.33, 536/25.3

ABSTRACT:

Modified oligonucleotides 3'-NHP(O)(O.sup.-)O-5' phosphoramidates were synthesized on a solid phase support. The phosphoramidate analogs were found to have significantly increased resistance toward phosphodiesterase digestion. Thermal dissociation experiments demonstrated that these compounds form more stable duplexes than phosphodiesters with complementary DNA and particularly RNA strands. Further, the phosphoramidate analogs can also form stable triplexes with double-stranded DNA target, where under similar conditions parent phosphodiester compounds failed to do so.
12 Claims, 35 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 17

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image

8. Document ID: US 5935830 A

Entry 8 of 34 File: USPT Aug 10, 1999

US-PAT-NO: 5935830
DOCUMENT-IDENTIFIER: US 5935830 A

TITLE: Targeted mutagenesis in living cells using modified oligonucleotides

DATE-ISSUED: August 10, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Meyer, Jr.; Rich B.	Bothell	WA	N/A	N/A
Gamper; Howard B.	Woodinville	WA	N/A	N/A
Kutyavin; Igor V.	Bothell	WA	N/A	N/A
Gall; Alexander A.	Bothell	WA	N/A	N/A

US-CL-CURRENT: 435/462; 435/325, 435/375, 435/468, 435/471, 435/6, 435/91.1, 536/23.1, 536/24.31, 536/24.5

ABSTRACT:

A method for introducing a site-specific mutation into a target polynucleotide sequence is presented. The method involves the use of an oligonucleotide capable of binding to the target sequence, either by triplex formation (mediated by Hoogsteen, reverse Hoogsteen or equivalent base pairing) or by Watson/Crick base pairing (in the presence of a recombinase enzyme). The oligonucleotide of the invention is modified by the covalent attachment of one or more electrophilic groups. When a modified oligonucleotide is bound to its target sequence, the electrophilic group is able to interact with a nearby nucleotide in the target sequence, causing a modification to the nucleotide that results in a change in nucleotide sequence. Compositions used in the practice of the method are also disclosed.
66 Claims, 2 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 2

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image

9. Document ID: US 5869241 A

Entry 9 of 34 File: USPT Feb 9, 1999

US-PAT-NO: 5869241
DOCUMENT-IDENTIFIER: US 5869241 A

TITLE: Method of determining DNA sequence preference of a DNA-binding molecule

DATE-ISSUED: February 9, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Edwards; Cynthia A.	Menlo Park	CA	N/A	N/A
Cantor; Charles R.	Boston	MA	N/A	N/A
Andrews; Beth M.	Maynard	MA	N/A	N/A
Turin; Lisa M.	Redwood City	CA	N/A	N/A
Fry; Kirk E.	Palo Alto	CA	N/A	N/A

US-CL-CURRENT: 435/6; 435/91.1, 435/91.2

ABSTRACT:

The present invention defines a DNA:protein-binding assay useful for screening libraries of synthetic or biological compounds for their ability to bind DNA test sequences. The assay is versatile in that any number of test sequences can be tested by placing the test sequence adjacent to a defined protein binding screening sequence. Binding of molecules to these test sequence changes the binding characteristics of the protein molecule to its cognate binding sequence. When such a molecule binds the test sequence the equilibrium of the DNA:protein complexes is disturbed, generating changes in the concentration of free DNA probe. Numerous exemplary target test sequences (SEQ ID NO:1 to SEQ ID NO:600) are set forth. The assay of the present invention is also useful to characterize the preferred binding sequences of any selected DNA-binding molecule.
11 Claims, 72 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 47

10. Document ID: US 5853993 A

Entry 10 of 34 File: USPT Dec 29, 1998

US-PAT-NO: 5853993
DOCUMENT-IDENTIFIER: US 5853993 A

TITLE: Signal enhancement method and kit

DATE-ISSUED: December 29, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Dellinger; Douglas J.	Sunnyvale	CA	N/A	N/A
Dahm; SueAnn C.	Palo Alto	CA	N/A	N/A
Troll; Mark A.	Palo Alto	CA	N/A	N/A

US-CL-CURRENT: 435/6; 536/23.1, 536/24.3

ABSTRACT:

The invention discloses and claims a signal amplification method for detecting a target nucleic acid analyte having a homopolymeric region and a target sequence. The method comprises (a) contacting an analyte under hybridizing conditions with a multiplicity of reporter probes, each probe including a signal region and an oligonucleotide sequence which is complementary to, and capable of forming a stable hybrid with the analyte homopolymeric region, whereby the hybridization of multiple reporter probes to the homopolymeric region provides for signal amplification; and (b) forming an analyte:capture probe hybrid by contacting the analyte target sequence with a capture probe under hybridizing conditions.
16 Claims, 8 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 6

11. Document ID: US 5837835 A

Entry 11 of 34 File: USPT Nov 17, 1998

US-PAT-NO: 5837835
DOCUMENT-IDENTIFIER: US 5837835 A

TITLE: Oligonucleotide N3'-P5' phosphoramidates: hybridization and nuclease resistance properties

DATE-ISSUED: November 17, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Gryaznov; Sergei M.	San Mateo	CA	N/A	N/A
Schultz; Ronald G.	Fremont	CA	N/A	N/A
Chen; Jer-kang	Palo Alto	CA	N/A	N/A

US-CL-CURRENT: 536/23.1; 435/6, 536/24.1, 536/24.3, 536/24.5

ABSTRACT:

Modified oligonucleotides 3'-NHP(O)(O.sup.-)O-5' phosphoramidates were synthesized on a solid phase support. The phosphoramidate analogs were found to have significantly increased resistance toward phosphodiesterase digestion. Thermal dissociation experiments demonstrated that these compounds form more stable duplexes than phosphodiesters with complementary DNA and particularly RNA strands. Further, the phosphoramidate analogs can also form stable triplexes with double-stranded DNA target, where under similar conditions parent phosphodiester compounds failed to do so.
7 Claims, 15 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 17

12. Document ID: US 5830653 A

Entry 12 of 34 File: USPT Nov 3, 1998

US-PAT-NO: 5830653
DOCUMENT-IDENTIFIER: US 5830653 A

TITLE: Methods of using oligomers containing modified pyrimidines

DATE-ISSUED: November 3, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Froehler; Brian	Belmont	CA	N/A	N/A
Wagner; Rick	Belmont	CA	N/A	N/A
Matteucci; Mark	Burlingame	CA	N/A	N/A
Jones; Robert J.	Millbrae	CA	N/A	N/A
Gutierrez; Arnold J.	San Jose	CA	N/A	N/A
Pudlo; Jeff	Burlingame	CA	N/A	N/A

US-CL-CURRENT: 435/6; 435/325, 435/375, 514/44, 536/24.5

ABSTRACT:

Novel oligomers are disclosed which have enhanced ability with respect to forming duplexes or triplexes compared with oligomers containing only conventional bases. The oligomers contain the bases 5-(1-propynyl)uracil, 5-(1-propynyl)cytosine or related analogs. The oligomers of the invention are capable of (i) forming triplexes with various target sequences such as virus or oncogene sequences by coupling into the major groove of a target DNA duplex at physiological pH or (ii) forming duplexes by binding to single-stranded DNA or to RNA encoded by target genes. The oligomers of the invention can be incorporated into pharmaceutically acceptable carriers and can be constructed to have any desired sequence, provided the sequence normally includes one or more bases that is replaced with the analogs of the invention. compositions of the invention can be used as pharmaceutical agents to treat various diseases such as those caused by viruses and can be used for diagnostic purposes in order to detect viruses or disease conditions.
15 Claims, 29 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 29

13. Document ID: US 5792608 A

Entry 13 of 34 File: USPT Aug 11, 1998

US-PAT-NO: 5792608
DOCUMENT-IDENTIFIER: US 5792608 A

TITLE: Nuclease stable and binding competent oligomers and methods for their use

DATE-ISSUED: August 11, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Swaminathan; Sundaramoorthi	Burlingame	CA	N/A	N/A
Matteucci; Mark	Burlingame	CA	N/A	N/A
Jones; Robert J.	Millbrae	CA	N/A	N/A
Pudlo; Jeff	Burlingame	CA	N/A	N/A
Munger; John	San Francisco	CA	N/A	N/A

US-CL-CURRENT: 435/6; 436/501, 536/24.5

ABSTRACT:

Oligomers are disclosed which have modified internucleotide linkages and can form triplex and duplex structures by binding to complementary nucleic acid sequences. The oligomers of the invention may be incorporated into carriers and may be constructed to have any desired sequence. Compositions of the invention can be used for diagnostic purposes in order to detect viruses or disease conditions.
35 Claims, 38 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 38

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image

14. Document ID: US 5744131 A

Entry 14 of 34 File: USPT Apr 28, 1998

US-PAT-NO: 5744131
DOCUMENT-IDENTIFIER: US 5744131 A

TITLE: Sequence-directed DNA-binding molecules compositions and methods

DATE-ISSUED: April 28, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Edwards; Cynthia A.	Menlo Park	CA	N/A	N/A
Fry; Kirk E.	Palo Alto	CA	N/A	N/A
Cantor; Charles R.	Boston	MA	N/A	N/A
Andrews; Beth M.	Maynard	MA	N/A	N/A

US-CL-CURRENT: 424/78.08; 436/501, 514/1

ABSTRACT:

The present invention defines an assay useful for screening libraries of synthetic or biological compounds for their ability to bind specific DNA test sequences. The assay is also useful for determining the sequence specificity and relative DNA-binding affinity of DNA-binding molecules for any particular DNA sequence. Also described herein are potential applications of the assay, including: 1) the detection of lead compounds or new drugs via the mass screening of libraries of synthetic or biological compounds (i.e., fermentation broths); 2) the design of sequence-specific DNA-binding drugs comprised of homo- or hetero-meric subunits of molecules for which the sequence specificity was determined using the assay; and 3) the use of molecules for which sequence specificity was determined using the assay as covalently attached moieties to aid in the binding of nucleic acid or other macromolecular polymers to nucleic acid sequences.
3 Claims, 48 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 33

15. Document ID: US 5738990 A

Entry 15 of 34 File: USPT Apr 14, 1998

US-PAT-NO: 5738990
DOCUMENT-IDENTIFIER: US 5738990 A

TITLE: Sequence-directed DNA-binding molecules compositions and methods

DATE-ISSUED: April 14, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Edwards; Cynthia A.	Menlo Park	CA	N/A	N/A
Fry; Kirk E.	Palo Alto	CA	N/A	N/A
Cantor; Charles R.	Boston	MA	N/A	N/A
Andrews; Beth M.	Maynard	MA	N/A	N/A

US-CL-CURRENT: 435/6; 435/320.1, 435/69.1, 536/24.1

ABSTRACT:

The present invention defines an assay useful for screening libraries of synthetic or biological compounds for their ability to bind specific DNA test sequences. The assay is also useful for determining the sequence specificity and relative DNA-binding affinity of DNA-binding molecules for any particular DNA sequence. Also described herein are potential applications of the assay, including: 1) the detection of lead compounds or new drugs via the mass screening of libraries of synthetic or biological compounds (i.e., fermentation broths); 2) the design of sequence-specific DNA-binding drugs comprised of homo- or hetero-meric subunits of molecules for which the sequence specificity was determined using the assay; and 3) the use of molecules for which sequence specificity was determined using the assay as covalently attached moieties to aid in the binding of nucleic acid or other macromolecular polymers to nucleic acid sequences.
5 Claims, 48 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 33

16. Document ID: US 5734040 A

Entry 16 of 34 File: USPT Mar 31, 1998

US-PAT-NO: 5734040
DOCUMENT-IDENTIFIER: US 5734040 A

TITLE: Positively charged oligonucleotides as regulators of gene expression

DATE-ISSUED: March 31, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Weeks; Daniel L.	Iowa City	IA	N/A	N/A
Dagle; John	Iowa City	IA	N/A	N/A

US-CL-CURRENT: 536/24.5; 435/325, 536/23.1

ABSTRACT:

This invention relates to oligonucleotides with ethylenediamine phosphoramidate internucleoside linkages useful for binding to eukaryotic duplex DNA to inhibit or alter gene expression.
23 Claims, 2 Drawing figures
Exemplary Claim Number: 20
Number of Drawing Sheets: 1

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image

17. Document ID: US 5726297 A

Entry 17 of 34 File: USPT Mar 10, 1998

US-PAT-NO: 5726297
DOCUMENT-IDENTIFIER: US 5726297 A

TITLE: Oligodeoxyribonucleotide N3' P5' phosphoramidates

DATE-ISSUED: March 10, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Gryaznov; Sergei M.	San Mateo	CA	N/A	N/A
Schultz; Ronald G.	Hayward	CA	N/A	N/A
Chen; Jer-Kang	Palo Alto	CA	N/A	N/A

US-CL-CURRENT: 536/22.1; 435/6, 436/501, 536/23.1, 536/24.1, 536/24.3, 536/24.31, 536/24.32, 536/24.33, 536/25.3

ABSTRACT:

Modified oligodeoxyribonucleotide 3'--NHP (O) (O.sup.-) O-5' phosphoramidates were synthesized on a solid phase support. The phosphoramidate analogs were found to have significantly increased resistance toward phosphodiesterase digestion. Thermal dissociation experiments demonstrated that these compounds form more stable duplexes than phosphodiesters with complementary DNA and particularly RNA strands. Further, the phosphoramidate analogs can also form stable triplexes with double-stranded DNA target, where under similar conditions parent phosphodiester compounds failed to do so.
29 Claims, 35 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 17

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image

18. Document ID: US 5726014 A

Entry 18 of 34 File: USPT Mar 10, 1998

US-PAT-NO: 5726014
DOCUMENT-IDENTIFIER: US 5726014 A

TITLE: Screening assay for the detection of DNA-binding molecules

DATE-ISSUED: March 10, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Edwards; Cynthia A.	Menlo Park	CA	N/A	N/A
Cantor; Charles R.	Boston	MA	N/A	N/A
Andrews; Beth M.	Watertown	MA	N/A	N/A
Turin; Lisa M.	Berkeley	CA	N/A	N/A

US-CL-CURRENT: 435/6; 435/91.2, 436/501

ABSTRACT:

The present invention defines a DNA:protein-binding assay useful for screening libraries of synthetic or biological compounds for their ability to bind DNA test sequences. The assay is versatile in that any number of test sequences can be tested by placing the test sequence adjacent to a defined protein binding screening sequence. Binding of molecules to these test sequence changes the binding characteristics of the protein molecule to its cognate binding sequence. When such a molecule binds the test sequence the equilibrium of the DNA:protein complexes is disturbed, generating changes in the concentration of free DNA probe. Numerous exemplary target test sequences (SEQ ID NO:1 to SEQ ID NO:600) are set forth. The assay of the present invention is also useful to characterize the preferred binding sequences of any selected DNA-binding molecule.
19 Claims, 72 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 47

19. Document ID: US 5716780 A

Entry 19 of 34 File: USPT Feb 10, 1998

US-PAT-NO: 5716780
DOCUMENT-IDENTIFIER: US 5716780 A

TITLE: Method of constructing sequence-specific DNA-binding molecules

DATE-ISSUED: February 10, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Edwards; Cynthia A.	Menlo Park	CA	N/A	N/A
Fry; Kirk E.	Palo Alto	CA	N/A	N/A
Cantor; Charles R.	Boston	MA	N/A	N/A
Andrews; Beth M.	Watertown	MA	N/A	N/A

US-CL-CURRENT: 435/6; 436/501

ABSTRACT:

The present invention defines an assay useful for screening libraries of synthetic or biological compounds for their ability to bind specific DNA test sequences. The assay is also useful for determining the sequence specificity and relative DNA-binding affinity of DNA-binding molecules for any particular DNA sequence. Also described herein are potential applications of the assay, including: 1) the detection of lead compounds or new drugs via the mass screening of libraries of synthetic or biological compounds (i.e., fermentation broths); 2) the design of sequence-specific DNA-binding drugs comprised of homo- or hetero-meric subunits of molecules for which the sequence specificity was determined using the assay; and 3) the use of molecules for which sequence specificity was determined using the assay as covalently attached moieties to aid in the binding of nucleic acid or other macromolecular polymers to nucleic acid sequences.
9 Claims, 48 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 33

20. Document ID: US 5693463 A

Entry 20 of 34 File: USPT Dec 2, 1997

US-PAT-NO: 5693463
DOCUMENT-IDENTIFIER: US 5693463 A

TITLE: Method of ordering sequence binding preferences of a DNA-binding molecule

DATE-ISSUED: December 2, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Edwards; Cynthia A.	Menlo Park	CA	N/A	N/A
Fry; Kirk E.	Palo Alto	CA	N/A	N/A
Cantor; Charles R.	Boston	MA	N/A	N/A
Andrews; Beth M.	Maynard	MA	N/A	N/A

US-CL-CURRENT: 435/6; 435/7.23, 536/23.1

ABSTRACT:

The present invention defines an assay useful for screening libraries of synthetic or biological compounds for their ability to bind specific DNA test sequences. The assay is also useful for determining the sequence specificity and relative DNA-binding affinity of DNA-binding molecules for any particular DNA sequence. Also described herein are potential applications of the assay, including: 1) the detection of lead compounds or new drugs via the mass screening of libraries of synthetic or biological compounds (i.e., fermentation broths); 2) the design of sequence-specific DNA-binding drugs comprised of homo- or hetero-meric subunits of molecules for which the sequence specificity was determined using the assay; and 3) the use of molecules for which sequence specificity was determined using the assay as covalently attached moieties to aid in the binding of nucleic acid or other macromolecular polymers to nucleic acid sequences.
3 Claims, 48 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 33

Term	Documents
STABIL$3	0
STABIL.USPT.	328
STABILA.USPT.	6
STABILAC.USPT.	3
STABILAD.USPT.	2
STABILADJ.USPT.	1
STABILAE.USPT.	1
STABILAG.USPT.	1
STABILAGE.USPT.	1
STABILAJY.USPT.	1
(L2 AND (STABIL$3 ADJ3 TRIPLEX)).USPT.	34

There are more results than shown above, click here to view the entire set.

Display 20 Documents including document number 21

Display Format: REV Change Format

Search Results - Record(s) 21 through 34 of 34 returned.

21. Document ID: US 5693773 A

Entry 21 of 34 File: USPT Dec 2, 1997

US-PAT-NO: 5693773
DOCUMENT-IDENTIFIER: US 5693773 A

TITLE: Triplex-forming antisense oligonucleotides having abasic linkers targeting nucleic acids comprising mixed sequences of purines and pyrimidines

DATE-ISSUED: December 2, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kandimalla; Ekambar	Worcester	MA	N/A	N/A
Agrawal; Sudhir	Shrewsbury	MA	N/A	N/A

US-CL-CURRENT: 536/22.1; 435/5, 435/6, 435/91.1, 536/24.5

ABSTRACT:

The present invention provides a novel class of antisense oligonucleotides capable of hybridizing to and inhibiting expression of nucleic acids having mixed purine/pyrimidine sequences by triplex formation. The foldback triplex-forming oligonucleotides (FTFOs) of the invention are comprised of three regions, a duplex-forming region, which is sufficiently complementary to a region of the target nucleic acid to hybridizes to it under the conditions of interest, a triplex-forming region, which is an inverted repeat of the duplex-forming region and folds back upon the duplex formed between the duplex-forming region and the target nucleic acid to form a triplex, and a linker region, which connects the duplex-forming region and the triplex-forming region and allows formation of the triplex. A novel aspect of the FTFOs of the present invention is that from one to five abasic linkers substitute for nucleotides in the triplex-forming region and are positioned to match up with pyrimidine residues of the target when a triplex is formed. This allows the FTFOs of the present invention to target nucleic acid sequences having mixed purine/pyrimidine sequences. FTFOs according to the invention are useful for both in vitro and in vivo modulation of gene expression.
14 Claims, 21 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 12

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image

22. Document ID: US 5684143 A

Entry 22 of 34 File: USPT Nov 4, 1997

US-PAT-NO: 5684143
DOCUMENT-IDENTIFIER: US 5684143 A

TITLE: Oligo 2'-fluoronucleotide N3'->P5' phosphoramidates

DATE-ISSUED: November 4, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Gryaznov; Sergei	San Mateo	CA	N/A	N/A
Schultz; Ronald G.	Fremont	CA	N/A	N/A

US-CL-CURRENT: 536/23.1; 536/24.3, 536/24.5, 536/25.1

ABSTRACT:

A new class of oligonucleotide N3'.fwdarw.P5' phosphoramidates having 2' fluoro substituents are provided that have superior acid stability. The invention includes oligo-2'-fluoronucleotide N3'.fwdarw.P5' phosphoramidates, methods of synthesis, and duplexes and triplexes formed with DNA and RNA. Compounds of the invention are useful where the formation of stable and specific duplex and/or triplex structures is desired, including antisense and/or anti-gene pharmaceuticals, branched DNA components, DNA and/or RNA capture agents, components of DNA-based diagnostic assays, and the like.
16 Claims, 6 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 5

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image

23. Document ID: US 5652350 A

Entry 23 of 34 File: USPT Jul 29, 1997

US-PAT-NO: 5652350
DOCUMENT-IDENTIFIER: US 5652350 A

TITLE: Complementary DNA and toxins

DATE-ISSUED: July 29, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Watanabe; Kyoichi A.	Port Chester	NY	N/A	N/A
Ren; Wu-Yun	New Rochelle	NY	N/A	N/A
Weil; Roger	Geneve	N/A	N/A	CHX

US-CL-CURRENT: 536/22.1; 536/23.1

ABSTRACT:

This invention relates to new derivatized solid supports and compounds having the formula: ##STR1## wherein S may be a solid support; L may be a chemical bond or a suitable inorganic or organic linker; Z may be --SO.sub.2 -- or --S--S--; R may be --OH, an H-phosphonate, an alkane-phosphonate, a phosphotriester, a phosphite triester, a phosphite diester, a phosphorothioate, a phosphorodithioate, a phosphoroamidate, a phosphoroamidite, --OR.sup.1, --SR.sup.1, a nucleotide, N, which may be substituted or modified in its sugar, phosphate or base, or an oligonucleotide of the formula --(N).sub.g --R.sup.2, wherein N is as defined above which may be the same or different; g is an integer from one to two hundred; R.sup.1 is a suitable protecting group; and R.sup.2 may be an H-phosphonate, an alkane-phosphonate, a phosphotriester, a phosphite triester, a phosphite diester, a phosphorothioate, a phosphorodithioate, a phosphoroamidate, a phosphoroamidite, --OH, --OR.sup.1, --SR.sup.1, or --O--P(OCH.sub.2 CH.sub.2 CN)--O--CH.sub.2 CH.sub.2 ZCH.sub.2 CH.sub.2 CR.sup.1. Furthermore, this invention provides methods for preparing 3'-phosphate oligonucleotides, 5'-phosphate oligonucleotides, (3',5')-diphosphate oligonucleotides, 3'-phosphate oligonucleotide conjugates, 5'-phosphate oligonucleotide conjugates, and (3',5')-diphosphate oligonucleotide conjugates.
1 Claims, 13 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 6

Number of Drawing Sheets: 6

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWMC | Image

24. Document ID: US 5645985 A

Entry 24 of 34 File: USPT Jul 8, 1997

US-PAT-NO: 5645985
DOCUMENT-IDENTIFIER: US 5645985 A

TITLE: Enhanced triple-helix and double-helix formation with oligomers containing modified pyrimidines

DATE-ISSUED: July 8, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Froehler; Brian	Belmont	CA	N/A	N/A
Wagner; Rick	Belmont	CA	N/A	N/A
Matteucci; Mark	Burlingame	CA	N/A	N/A
Jones; Robert J.	Millbrae	CA	N/A	N/A
Gutierrez; Arnold J.	Sandy Lane	CA	N/A	N/A
Pudlo; Jeff	Burlingame	CA	N/A	N/A

US-CL-CURRENT: 435/6; 536/24.3, 536/24.31, 536/24.32, 536/24.5, 536/26.8

ABSTRACT:

Novel oligomers are disclosed which have enhanced ability with respect to forming duplexes or triplexes compared with oligomers containing only conventional bases. The oligomers contain the bases 5-(1-propynyl)uracil, 5-(1-propynyl)cytosine or related analogs. The oligomers of the invention are capable of (i) forming triplexes with various target sequences such as virus or oncogene sequences by coupling into the major groove of a target DNA duplex at physiological pH or (ii) forming duplexes by binding to single-stranded DNA or to RNA encoded by target genes. The oligomers of the invention can be constructed to have any desired sequence, provided the sequence normally includes one or more bases that is replaced with the analogs of the invention. Compositions of the invention can be used used for diagnostic purposes in order to detect viruses or disease conditions.
18 Claims, 19 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 29

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWMC | Image

25. Document ID: US 5641625 A

Entry 25 of 34 File: USPT Jun 24, 1997

US-PAT-NO: 5641625
DOCUMENT-IDENTIFIER: US 5641625 A

TITLE: Cleaving double-stranded DNA with peptide nucleic acids

DATE-ISSUED: June 24, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ecker; David J.	Leucadia	CA	N/A	N/A
Buchardt; Ole	Vaerlose	N/A	N/A	DKX
Egholm; Michael	Fredriksberg	N/A	N/A	DKX
Nielsen; Peter E.	DK 2980 Koddedal	N/A	N/A	DKX
Berg; Rolf H.	Rungsted Kyst	N/A	N/A	DKX
Mollegaard; Niels E.	Virum	N/A	N/A	DKX

US-CL-CURRENT: 435/6; 536/24.3

ABSTRACT:

Peptide nucleic acids and analogues of peptide nucleic acids are used to form duplex, triplex, and other structures with nucleic acids and to modify nucleic acids. The peptide nucleic acids and analogues thereof also are used to modulate protein activity through, for example, transcription arrest, transcription initiation, and site specific cleavage of nucleic acids.
18 Claims, 49 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 40

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image

26. Document ID: US 5631135 A

Entry 26 of 34 File: USPT May 20, 1997

US-PAT-NO: 5631135
DOCUMENT-IDENTIFIER: US 5631135 A

TITLE: Oligonucleotide N3'.fwdarw.P5' phosphoramidates: hybridization and nuclease resistance properties

DATE-ISSUED: May 20, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Gryaznov; Sergei M.	San Mateo	CA	N/A	N/A
Schultz; Ronald G.	Fremont	CA	N/A	N/A
Chen; Jer-Kang	Palo Alto	CA	N/A	N/A

US-CL-CURRENT: 435/6; 435/91.1, 536/23.1, 536/24.3, 536/24.5, 536/25.4

ABSTRACT:

Modified oligonucleotides 3'-NHP(O)(O.sup.-)O-5' phosphoramidates were synthesized on a solid phase support. The phosphoramidate analogs were found to have significantly increased resistance toward phosphodiesterase digestion. Thermal dissociation experiments demonstrated that these compounds form more stable duplexes than phosphodiesters with complementary DNA and particularly RNA strands. Further, the phosphoramidate analogs can also form stable triplexes with double-stranded DNA target, where under similar conditions parent phosphodiester compounds failed to do so.
40 Claims, 35 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 17

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image

27. Document ID: US 5599922 A

Entry 27 of 34 File: USPT Feb 4, 1997

US-PAT-NO: 5599922
DOCUMENT-IDENTIFIER: US 5599922 A

TITLE: Oligonucleotide N3'-P5' phosphoramidates: hybridization and nuclease resistance properties

DATE-ISSUED: February 4, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Gryaznov; Sergei M.	San Mateo	CA	N/A	N/A
Schultz; Ronald G.	Fremont	CA	N/A	N/A
Chen; Jer-kang	Palo Alto	CA	N/A	N/A

US-CL-CURRENT: 536/25.3; 435/6, 536/23.1

ABSTRACT:

Modified oligonucleotide 3'-NHP(O)(O.sup.-)O-5' phosphoramidates were synthesized on a solid phase support. The phosphoramidate analogs were found to have significantly increased resistance toward phosphodiesterase digestion. Thermal dissociation experiments demonstrated that these compounds form more stable duplexes than phosphodiesters with complementary DNA and particularly RNA strands. Further, the phosphoramidate analogs can also form stable triplexes with double-stranded DNA target, where under similar conditions parent phosphodiester compounds failed to do so.
32 Claims, 35 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 17

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image

28. Document ID: US 5591607 A

Entry 28 of 34 File: USPT Jan 7, 1997

US-PAT-NO: 5591607
DOCUMENT-IDENTIFIER: US 5591607 A

TITLE: Oligonucleotide N3.fwdarw.P5' phosphoramidates: triplex DNA formation

DATE-ISSUED: January 7, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Gryaznov; Sergei M.	San Mateo	CA	N/A	N/A
Schultz; Ronald G.	Fremont	CA	N/A	N/A
Chen; Jer-kang	Palo Alto	CA	N/A	N/A

US-CL-CURRENT: 435/91.1; 435/6, 536/23.1, 536/24.1, 536/24.5

ABSTRACT:

Modified oligonucleotides 3'-NHP(O)(O.sup.-)O-5' phosphoramidates were synthesized on a solid phase support. The phosphoramidate analogs were found to have significantly increased resistance toward phosphodiesterase digestion. Thermal dissociation experiments demonstrated that these compounds form more stable duplexes than phosphodiesters with complementary DNA and particularly RNA strands. Further, the phosphoramidate analogs can also form stable triplexes with double-stranded DNA target, where under similar conditions parent phosphodiester compounds failed to do so.
16 Claims, 35 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 17

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image

29. Document ID: US 5578444 A

Entry 29 of 34 File: USPT Nov 26, 1996

US-PAT-NO: 5578444
DOCUMENT-IDENTIFIER: US 5578444 A

TITLE: Sequence-directed DNA-binding molecules compositions and methods

DATE-ISSUED: November 26, 1996

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Edwards; Cynthia A.	Menlo Park	CA	N/A	N/A
Cantor; Charles R.	Boston	MA	N/A	N/A
Andrews; Beth M.	Maynard	MA	N/A	N/A
Turin; Lisa M.	Redwood City	CA	N/A	N/A
Fry; Kirk E.	Palo Alto	CA	N/A	N/A

US-CL-CURRENT: 435/6; 435/7.23, 536/23.1

ABSTRACT:

The present invention defines a DNA:protein-binding assay useful for screening libraries of synthetic or biological compounds for their ability to bind DNA test sequences. The assay is versatile in that any number of test sequences can be tested by placing the test sequence adjacent to a defined protein binding screening sequence. Binding of molecules to these test sequence changes the binding characteristics of the protein molecule to its cognate binding sequence. When such a molecule binds the test sequence the equilibrium of the DNA:protein complexes is disturbed, generating changes in the concentration of free DNA probe. Numerous exemplary target test sequences (SEQ ID NO:1 to SEQ ID NO:600) are set forth. The assay of the present invention is also useful to characterize the preferred binding sequences of any selected DNA-binding molecule.
15 Claims, 71 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 48

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image

30. Document ID: US 5571937 A

Entry 30 of 34 File: USPT Nov 5, 1996

US-PAT-NO: 5571937
DOCUMENT-IDENTIFIER: US 5571937 A

TITLE: Complementary DNA and toxins

DATE-ISSUED: November 5, 1996

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Watanabe; Kyoichi A.	Port Chester	NY	N/A	N/A
Ren; Wu-Yun	New Rochelle	NY	N/A	N/A
Weil; Roger	Geneva	N/A	N/A	CHX

US-CL-CURRENT: 560/147; 562/10, 562/11, 562/9

ABSTRACT:

This invention relates to new derivatized solid supports and compounds having the formula: ##STR1## wherein S may be a solid support; L may be a chemical bond or a suitable inorganic or organic linker; Z may be --SO.sub.2 -- or --S--S--; R may be --OH, an H-phosphonate, an alkanephosphonate, a phosphotriester, a phosphite triester, a phosphite diester, a phosphorothioate, a phosphorodithioate, a phosphoroamidate, a phosphoroamidite, --OR.sup.1 --SR.sup.1, a nucleotide, N, which may be substituted or modified in its sugar, phosphate or base or an oligonucleotide of the formula --(N).sub.g, --R.sup.2, wherein N is as defined above which may be the same or different; g is an integer from one to two hundred; R.sup.1 is a suitable protecting group; and R.sup.2 may be an H-phosphonate, an alkane-phosphonate, a phosphotriester, a phosphite triester, a phosphite diester, a phosphorothioate, a phosphorodithioate, a phosphoroamidate, a phosphoroamidite, --OH, --OR.sup.1, --SR.sup.1, or --O--P(OCH.sub.2 CH.sub.2 CN)--O--CH.sub.2 CH.sub.2 ZCH.sub.2 CH.sub.2 OR.sup.1. Furthermore, this invention provides methods for preparing 3'-phosphate oligonucleotides, 5'-phosphate oligonucleotides, (3',5')-diphosphate oligonucleotides, 3'-phosphate oligonucleotide conjugates, 5'-phosphate oligonucleotide conjugates, and (3',5')-diphosphate oligonucleotide conjugates.
3 Claims, 13 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 6

31. Document ID: US 5482836 A

Entry 31 of 34 File: USPT Jan 9, 1996

US-PAT-NO: 5482836
DOCUMENT-IDENTIFIER: US 5482836 A

TITLE: DNA purification by triplex-affinity capture and affinity capture electrophoresis

DATE-ISSUED: January 9, 1996

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Cantor; Charles R.	Boston	MA	N/A	N/A
Ito; Takashi	Chiba	N/A	N/A	JPX
Smith; Cassandra L.	Boston	MA	N/A	N/A

US-CL-CURRENT: 435/6; 204/456, 435/91.1, 536/23.1, 536/24.3, 536/24.33, 536/25.3, 536/25.32

ABSTRACT:

The invention provides a method for purifying or isolating double stranded DNA intact using triple helix formation. The method includes the steps of complexing an oligonucleotide and double stranded DNA to generate a triple helix and immobilization of the triple helix on a solid phase by means of a molecular recognition system such as avidin/biotin. The purified DNA is then recovered intact by treating the solid phase with a reagent that breaks the bonds between the oligonucleotide and the intact double stranded DNA while not affecting the Watson-Crick base pairs of the double helix. The present invention also provides a method for purifying or isolating double stranded DNA intact by complexing the double stranded DNA with a specific binding partner and recovering the complex during electrophoresis by immobilizing it on a solid phase trap imbedded in an electrophoretic gel.
27 Claims, 6 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 5

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image

☐ 32 Document ID: US 5407801 A

Entry 32 of 34 File: USPT Apr 18, 1995

US-PAT-NO: 5407801
DOCUMENT-IDENTIFIER: US 5407801 A

TITLE: Formation of oligonucleotide triplexes with selectively modified cytosines

DATE-ISSUED: April 18, 1995

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Miller; Paul S.	Baltimore	MD	N/A	N/A

US-CL-CURRENT: 435/6; 536/25.3, 536/25.32

ABSTRACT:

An oligonucleotide or analog thereof including a single cytidine residue at a selected position and having one or more cytidine residues which are 5-methyl substituted. The cytidine nucleus can be selectively transaminated to include an aminoalkyl or carboxyalkyl group as a linker for other functional groups which can be used to form DNA duplexes and triplexes.
5 Claims, 10 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 8

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image

☐ 33 Document ID: US 5176996 A

Entry 33 of 34 File: USPT Jan 5, 1993

US-PAT-NO: 5176996
DOCUMENT-IDENTIFIER: US 5176996 A

TITLE: Method for making synthetic oligonucleotides which bind specifically to target sites on duplex DNA molecules, by forming a colinear triplex, the synthetic oligonucleotides and methods of use

DATE-ISSUED: January 5, 1993

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Hogan; Michael E.	The Woodlands	TX	N/A	N/A
Kessler; Donald J.	The Woodlands	TX	N/A	N/A

US-CL-CURRENT: 435/6; 435/91.3, 435/91.5, 436/94, 536/24.5, 536/25.1

ABSTRACT:

A method for making synthetic oligonucleotides which bind to target sequences in a duplex DNA forming colinear triplexes by binding to the major groove. The method includes scanning genomic duplex DNA and identifying nucleotide target sequences of greater than about 20 nucleotides having either about at least 65% purine bases or about at least 65% pyrimidine bases; and synthesizing synthetic oligonucleotides complementary to identified target sequences. The synthetic oligonucleotides have a G when the complementary location in the DNA duplex has a GC base pair and have a T when the complementary location in the DNA duplex has an AT base pair. The synthetic oligonucleotides are oriented 5' to 4' and bind parallel or 3' to 5' and bind anti-parallel to the about at least 65% purine strand.
3 Claims, 8 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 7

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWMC | Image

34. Document ID: US 5175266 A

Entry 34 of 34 File: USPT Dec 29, 1992

US-PAT-NO: 5175266
DOCUMENT-IDENTIFIER: US 5175266 A

TITLE: Nucleosides and oligonucleosides with a phosphate-free internucleoside backbone and process for preparing the same

DATE-ISSUED: December 29, 199[illegible]

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Varma; Rajender S.	The Woodlands	TX	N/A	N/A
Hogan; Michael E.	The Woodlands	TX	N/A	N/A
Revankar; Ganapathi R.	The Woodlands	TX	N/A	N/A
Rao; Takkellapati S.	The Woodlands	TX	N/A	N/A

US-CL-CURRENT: 536/22.1; 549/499

ABSTRACT:

Nucleoside derivatives which contain a nucleo-base, a sugar and an amino acid backbone of the structure: ##STR1## where R' refers to the various amino acid side chains or their blocked equivalent and R refers to a nucleo-base or its blocked equivalent. The synthesis of these nucleoside derivatives proceeds by a series of steps including oxidation of the 3'-azido nucleoside derivative, coupling to a benzylated ester of an amino acid to yield the amide and hydrogenation. The adenine, guanine, cytosine and thymine nucleosides with an amino acid at the 5' terminus are synthesized. From such monomers oligonucleotides can be synthesized which possess an amino acid backbone, using either solid state phase chemistry or liquid phase chemistry.
3 Claims, 14 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 13

Term	Documents
STABIL$3	0
STABIL.USPT.	328
STABILA.USPT.	6
STABILAC.USPT.	3
STABILAD.USPT	2
STABILADJ.USPT.	1
STABILAE.USPT.	1
STABILAG.USPT	1
STABILAGE.USPT.	1
STABILAJY.USPT.	1
(L2 AND (STABIL$3 ADJ3 TRIPLEX)).USPT.	34

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Search Results -

Term	Documents
ION$5	0
ION.USPT.	190264
IONA USPT.	120
IONABLE USPT	7
IONAC.USPT.	492
IONACC.USPT.	1
IONACID USPT	1
IONACK+ USPT	1
IONACS.USPT.	5
IONACSR USPT.	1
(L3 AND ION$5) USPT.	21

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Refine Search: l3 and ion$5

Search History

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USPT	l1 and stabil$3	548	L2
USPT	(triplex adj3 dna) or (triplex adj3 nucleic)	584	L1

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(FILE 'HOME' ENTERED AT 08:53:58 ON 19 APR 2000)

FILE 'MEDLINE, BIOSIS, CAPLUS, EMBASE, SCISEARCH, BIOTECHDS' ENTERED AT 08:54:03 ON 19 APR 2000

L1 1656 S TRIPLEX(3W)(DNA OR NUCLEIC)
L2 615 S L1 AND STABIL?
L3 3 S L2 AND (?METHYLAMMONIUM? OR TETRAETHYLAMMONIUM)
L4 71 S L1 AND (INCREAS? OR ENHANC?)(2W)STABIL?
L5 36 DUP REM L4 (35 DUPLICATES REMOVED)
L6 30 S L5 AND PY<1999

=> d ibib abs l3 1-3

L3 ANSWER 1 OF 3 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1998:641013 CAPLUS
DOCUMENT NUMBER: 130:25257
TITLE: Tailored Hydrophobic Cavities in Oligonucleotide-Steroid Conjugates
AUTHOR(S): Letsinger, Robert L.; Chaturvedi, Surendrakumar
CORPORATE SOURCE: Department of Chemistry and Department of Biochemistry, Molecular Biology, and Cell Biology, Northwestern University, Evanston, IL, 60208, USA
SOURCE: Bioconjugate Chem. (1998), 9(6), 826-830
CODEN: BCCHES; ISSN: 1043-1802
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Hydrophobic pockets can be generated readily in aq. soln. by hybridization of oligonucleotide conjugates contg. one or two androstane units inserted into each strand by short phosphoryl linkers. Both double- and triple-stranded complexes formed by the conjugates are ***stabilized*** by adding to the soln. a water-sol. hydrophobic substrate, 3,17-diamino-androstane dihydrochloride, that can bind in the pocket. This substrate has no effect on the dissocn. of unmodified oligonucleotides, and 1,10-diamino-decane dihydrochloride has no effect on dissocn. of complexes of these steroid conjugates under the same conditions. This system provides a new means for selectively modulating and triggering hybridization of oligonucleotide conjugates. ***Cetyltrimethylammonium*** bromide strongly enhances the ***stability*** of complexes of the steroid conjugates; however, it also leads to pptn. of complexes of unmodified oligonucleotides.

L3 ANSWER 2 OF 3 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1998:485070 CAPLUS
DOCUMENT NUMBER: 129:105719
TITLE: ***Stabilization*** of triplexes by water structure-making substances
INVENTOR(S): Fresco, Jacques R.; Lavelle, John Laurence Richard
PATENT ASSIGNEE(S): Princeton University, USA
SOURCE: PCT Int. Appl., 34 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent

LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9829428	A1	19980709	WO 1998-US246	19980102
W: JP, US				
RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
US 6030861	A	20000229	US 1997-1051	19971230
PRIORITY APPLN. INFO.:			US 1997-34594	19970102

AB The ***stability*** of a triplex in a soln. is enhanced by adding to the soln., either before or after formation of the triplex, an effective amt. of either of the following: (a) a water structure-making substance other than an alkali or alk. earth metal cation, a ***tetramethylammonium*** cation, or a polyamine; or (b) a combination of said water structure-making substance and an alkali or alk. earth cation, a ***tetramethylammonium*** cation, or a polyamine.

L3 ANSWER 3 OF 3 BIOTECHDS COPYRIGHT 2000 DERWENT INFORMATION LTD
ACCESSION NUMBER: 1998-09020 BIOTECHDS
TITLE: Enhancing ***stability*** of ***triplexes*** formed from ***nucleic*** acid strands; triple helix ***stability*** enhancer, e.g. cation, cationic lipid, dimethyl sulfoxide, polyethylene glycol or alcohol, used as DNA probe, etc.
AUTHOR: Fresco J R; LaVelle J L R
PATENT ASSIGNEE: Univ.Princeton
LOCATION: Princeton, NJ, USA.
PATENT INFO: WO 9829428 9 Jul 1998
APPLICATION INFO: WO 1998-US246 2 Jan 1998
PRIORITY INFO: US 1997-34594 2 Jan 1997
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: WPI: 1998-388026 [33]
AN 1998-09020 BIOTECHDS
AB A new method of enhancing the ***stability*** of a triple helix formed from one or more nucleic acid strands in a solution involves adding (before or after triple helix formation) a water structure-making substance other than an alkali metal cation, a tetramethylammonium cation or polyamine. Also claimed is a triple helix prepared using the new method. The water structure-making substance may be a cation, e.g. acetate, phosphate, sulfate, cyanate, isocyanate, isothiocyanate, ***tetraethylammonium*** , ***methylammonium*** , dimethylammonium or trimethylammonium, or a cationic lipid, e.g. cetyltrimethyl ammonium, 2,3-dioleyloxy-N-(2(sperminecarboxamido) ethyl)-N,N-dimethyl-1-propammonium or tridodecylmethylammonium. The substance may also be dimethyl sulfoxide, polyethylene glycol or an alcohol, especially methanol, ethanol or isopropanol. The third strand may be DNA or RNA and the substance may be covalently linked to the third strand. The substances act by facilitating the unwinding of the duplex to the extent needed to accommodate the third strand and by facilitating the removal of water from the major groove to permit third strand binding which may be a DNA probe. (34pp)

=> d ibib abs l6 1

L6 ANSWER 1 OF 30 MEDLINE
ACCESSION NUMBER: 1999030492 MEDLINE
DOCUMENT NUMBER: 99030492
TITLE: Comb-type copolymer: stabilization of ***triplex*** ***DNA*** and possible application in antigene strategy.
AUTHOR: Ferdous A; Watanabe H; Akaike T; Maruyama A
CORPORATE SOURCE: Department of Biomolecular Engineering, Faculty of Bioscience and Biotechnology, Tokyo, Japan.
SOURCE: JOURNAL OF PHARMACEUTICAL SCIENCES, ***(1998 Nov)*** 87 (11) 1400-5.
Journal code: JO7. ISSN: 0022-3549.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199902
ENTRY WEEK: 19990204
AB By employing a reductive amination reaction between the epsilon-amino groups of poly(L-lysine) (PLL) and the reductive ends of the hydrophilic dextran (Dex) side chain, we have prepared different comb-type copolymers which varied in the degree of grafting and the length of the hydrophilic Dex chains. The resulting copolymers, poly(L-lysine)-graft-dextran (PLL-g-Dex), were tested for their ability to stabilize ***triplex*** ***DNA*** in vitro under physiologically relevant conditions. Thermal denaturation (UV-Tm) and circular dichroism experiments revealed that the graft copolymer with the higher degree of grafting of long Dex chains significantly ***increased*** the thermal ***stability*** of triplex structure of poly(dA).2poly(dT) by more than 50 degreesC without affecting the transition between ***triplex*** and single-stranded ***DNA*** or the native structure of DNA. Of importance is that when triplex formation involving a 30-mer target duplex from rat alphal (I) collagen promoter was analyzed by an in vitro electrophoretic mobility shift assay, the graft copolymer also remarkably diminished potassium inhibition of the purine motif triplex formation up to 200 mM as well as pH-dependence of the pyrimidine motif triplex formation. Moreover the triplex-stabilizing efficiency of the copolymer was significantly higher than that of other oligocations like spermine and spermidine. We suggest that a molecular design of comb-type copolymers consisting of various types of polycation backbones (e.g., PLL) grafted with different hydrophilic side chains (e.g., Dex) is a novel strategy to create efficient triplex stabilizers that will certainly shed light on possible in vivo application of the antigene strategy.

=> d ibib abs l6 2

L6 ANSWER 2 OF 30 MEDLINE
ACCESSION NUMBER: 1998426074 MEDLINE
DOCUMENT NUMBER: 98426074
TITLE: Benzoquinazoline derivatives as substitutes for thymine in nucleic acid complexes. Use of fluorescence emission of benzo[g]quinazoline-2,4-(1H,3H)-dione in probing duplex and triplex formation.

AUTHOR: Godde F; Toulme J J; Moreau S
CORPORATE SOURCE: INSERM U-386, IFR Pathologies Infectieuses, Universite Victor Segalen, Bordeaux, France.
SOURCE: BIOCHEMISTRY, ***(1998 Sep 29)*** 37 (39) 13765-75.
Journal code: A0G. ISSN: 0006-2960.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199901
ENTRY WEEK: 19990104

AB Triple helix formation obeys structural features that do not allow accommodation of every double-stranded sequence; it requires the occurrence of homopurine stretches. A further constraint comes from the weak energy of interaction between the third strand and the double-stranded target. In an attempt to design bases leading to ***increased*** ***stability*** of triplexes, we explored the ability of modified bases with an extended aromatic domain to increase third strand binding through stacking interactions. We report here the use of benzo[g]- and benzo[f]quinazoline-2,4-dione-(1H,3H)-dione as substitutes for thymine in the canonical TAT triplet. The synthesis and characterization of the beta nucleoside derivatives of benzoquinazolines are described. Triplex-forming oligonucleotides containing these modified bases have been prepared, and their ability to form triplexes has been evaluated by UV absorption-monitored thermal denaturation measurements. Benzo[g]quinazoline and benzo[f]quinazoline formed triple-stranded structures with slightly decreased stabilities. In addition, benzo[g]quinazoline revealed strong fluorescence emission properties which can be used to monitor selectively the formation of triple-helical structures. Annealing of benzo[g]quinazoline to complementary strands did not produce any fluorescence modification. But when it was introduced into the Hoogsteen strand of PyPuPy complexes, the fluorescence intensity was reduced and the emission maximum was shifted to short wavelengths.

=> d ibib abs l6 3

L6 ANSWER 3 OF 30 MEDLINE
ACCESSION NUMBER: 1998239715 MEDLINE
DOCUMENT NUMBER: 98239715
TITLE: Interactions of the antiviral quinoxaline derivative 9-OH-B220 [2, 3-dimethyl-6-(dimethylaminoethyl)-9-hydroxy-6H-indolo-[2, 3-b]quinoxaline] with duplex and ***triplex*** forms of synthetic ***DNA*** and RNA.
AUTHOR: Sehlstedt U; Aich P; Bergman J; Vallberg H; Norden B; Graslund A
CORPORATE SOURCE: Department of Biophysics, Stockholm University, Stockholm, S-106 91, Sweden.
SOURCE: JOURNAL OF MOLECULAR BIOLOGY, ***(1998 Apr 24)*** 278 (1) 31-56.
Journal code: J6V. ISSN: 0022-2836.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals; Cancer Journals
ENTRY MONTH: 199808

ENTRY WEEK: 19980804

AB The binding of an antiviral quinoxaline derivative, 2,3-dimethyl- 6 - (dimethylaminoethyl) - 9 - hydroxy - 6H - indolo - [2,3 - b]quinoxaline (9-OH-B220), to synthetic double and triple helical DNA (poly(dA).poly(dT) and poly(dA).2poly(dT)) and RNA (poly(rA). poly(rU) and poly (rA).2poly(rU)) has been characterized using flow linear dichroism (LD), circular dichroism (CD), fluorescence spectroscopy, and thermal denaturation. When either of the DNA structures or the RNA duplex serve as host polymers a strongly negative LD is displayed, consistent with intercalation of the chromophoric ring system between the base-pairs/triplets of the nucleic acid structures. Evidence for this geometry also includes weak induced CD signals and strong increments of the fluorescence emission intensities upon binding of the drug to each of these polymer structures. In agreement with intercalative binding, 9-OH-B220 is found to effectively ***enhance*** the thermal ***stability*** of both the double and triple helical states of DNA as well as the RNA duplex. In the case of poly(dA).2poly(dT), the drug provides an unusually large stabilization of its triple helical state; upon binding of 9-OH-B220 the triplex-to-duplex equilibrium is shifted towards higher temperature by 52.5 deg. C in a 10 mM sodium cacodylate buffer (pH 7.0) containing 100 mM NaCl and 1 mM EDTA.When triplex RNA serves as host structure, LD indicates that the average orientation angle between the drug chromophore plane and the helix axis of the triple helical RNA is only about 60 to 65 degrees. Moreover, the thermal stabilizing capability, as well as the fluorescence increment, CD inducing power and perturbations of the absorption envelope, of 9-OH-B220 in complex with the RNA triplex are all less pronounced than those observed for the complexes with DNA and duplex RNA. These features indicate binding of 9-OH-B220 in the wide and shallow minor groove of poly(rA).2poly(rU).Based on the present results, some implications for the applications of this low-toxic, antiviral and easily administered drug in an antigene strategy, as well as its potential use as an antiretroviral agent, are discussed.

=> d ibib abs l6 4

L6 ANSWER 4 OF 30 MEDLINE

ACCESSION NUMBER: 1998226617 MEDLINE

DOCUMENT NUMBER: 98226617

TITLE: Solution structure of an intramolecular DNA triplex containing 5-(1-propynyl)-2'-deoxyuridine residues in the third strand.

AUTHOR: Phipps A K; Tarkoy M; Schultze P; Feigon J

CORPORATE SOURCE: Department of Chemistry and Biochemistry, Molecular Biology Institute, University of California, Los Angeles 90095-1569, USA.

CONTRACT NUMBER: GM 37254 (NIGMS)

SOURCE: BIOCHEMISTRY, ***(1998 Apr 28)*** 37 (17) 5820-30. Journal code: A0G. ISSN: 0006-2960.

PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English

FILE SEGMENT: Priority Journals

OTHER SOURCE: PDB-1P3X

ENTRY MONTH: 199807

ENTRY WEEK: 19980704

AB Incorporation of the modified base 5-(1-propynl)-2'-deoxyuridine (propynylU) in the third strand of a triplex leads to ***enhanced*** triplex ***stabilization*** . To investigate effects of the propyne nucleotide on triplex structure and the factors underlying the ***increased*** ***stability*** , we have determined the solution structure of the intramolecular DNA pyrmidine-purine-pyrimdine d(AGAGAGAA-(EG)6-TTCTCTCT-(EG)6-PCPCPCPP) (PDD-EG), which contains 5-(1-propynl)-2'-deoxyuridine (P) in the third strand and hexakis(ethylene glycol) linkers [(EG)6]. The structure was calculated using X-PLOR with distance and dihedral angle restraints obtained from two-dimensional NMR experiments and refined with the direct relaxation matrix method. The structures show that the extended aromatic electron cloud of the propynylU nucleotide stacks well over the 5'-neighboring nucleotides, resulting in ***increased*** ***stabilization*** . The propynylU nucleotides also affect the overall structure of the triple helix. A comparison of the structure to that of the nonmodified intramolecular DNA triplex of the same sequence, d(AGAGAGAA-(EG)6-TTCTCTCT-(EG)6-TCTCTCTT) (DDD-EG), shows that PDD-EG has a more A-DNA like X displacement and inclination than DDD-EG yet still maintains predominantly S-type sugar puckers as found in DDD-EG and other DNA triplexes.

=> d ibib abs 16 5

L6 ANSWER 5 OF 30 MEDLINE
ACCESSION NUMBER: 1998066433 MEDLINE
DOCUMENT NUMBER: 98066433
TITLE: Modulation of Cm/T, G/A, and G/T triplex stability by conjugate groups in the presence and absence of KCl.
AUTHOR: Gamper H B Jr; Kutyavin I V; Rhinehart R L; Lokhov S G; Reed M W; Meyer R B
CORPORATE SCURCE: Epoch Pharmaceuticals, Inc., Bothell, Washington 98021, USA.
SOURCE: BIOCHEMISTRY, ***(1997 Dec 2)*** 36 (48) 14816-26. Journal code: A0G. ISSN: 0006-2960.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199803
ENTRY WEEK: 19980302

AB Apparent equilibrium association constants were determined by gel mobility shift analysis for triple strand formation between a duplex target containing a 21 base long A-rich homopurine run and several end-modified C(m)/T (pyrimidine motif; C(m) = 5-methylcytosine), G/A (purine motif), and G/T (purine-pyrimidine motif) triplex-forming oligonucleotides (TFOs). Incubations were carried out for 24 h at 37 degrees C in 20 mM HEPES, pH 7.2, 10 mM MgCl2, and 1 mM spermine. The purine motif triplex was the most stable (Ka = 6.2 x 10(8) M-1) even though the TFO self-associated as a linear duplex. Conjugation of a terminal hexanol or cholesterol group to the G/A-containing TFO reduced triplex stability by 1.6- or 13-fold, whereas an aminohexyl group or intercalating agent (acridine or psoralen) ***increased*** triplex ***stability*** by 1.3- or 13-fold. These end groups produced similar effects in C(m)/T and G/T triplexes, although the magnitude of the effect sometimes differed. Addition of 140 mM KCl to

mimic physiological conditions decreased stability of the G/A triplex by 1900-fold, making it less stable than the C(m)/T triplex. The inhibitory effect of KCl on G/A triplex formation could be partially compensated for by conjugating the TFO to an intercalating agent (30-350-fold stabilization) or by adding the triplex selective intercalator coralyne (1000-fold stabilization). Although the G/T triplex responded similarly to these agents, the stability of the C(m)/T triplex was unaffected by the presence of coralyne and was only enhanced 1.4-2.8-fold when the TFO was linked to an intercalating agent. In physiological buffer supplemented with 40 microM coralyne, the G/A triplex (Ka = 3.0 x 10(8) M-1) was more stable than the C(m)/T and G/T triplexes by factors of 300 and 12, respectively.

=> d ibib abs l6 6

L6 ANSWER 6 OF 30 MEDLINE
ACCESSION NUMBER: 1998026856 MEDLINE
DOCUMENT NUMBER: 98026856
TITLE: Relative stability of triplexes containing different numbers of T.AT and C+.GC triplets.
AUTHOR: Keppler M D; Fox K R
CORPORATE SOURCE: Division of Biochemistry and Molecular Biology, School of Biological Sciences, University of Southampton, Bassett Crescent East, Southampton SO16 7PX, UK.
SOURCE: NUCLEIC ACIDS RESEARCH, ***(1997 Nov 15)*** 25 (22) 4644-9.
Journal code: O8L. ISSN: 0305-1048.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals; Cancer Journals
ENTRY MONTH: 199803
ENTRY WEEK: 19980303

AB We have used DNase I footprinting to compare the stability of parallel triple helices containing different numbers of T.AT and C+. GC triplets. We have targeted a fragment containing the 17mer sequence 5'-AGGAAGAGAAAAAAGAA with the 9mer oligonucleotides 5'-TCCTTCTCT, 5'-TTCTCTTTT and 5'-TTTTTTCTT, which form triplexes at the 5'-end, centre and 3'-end of the target site respectively. Quantitative DNase I footprinting has shown that at pH 5.0 the dissociation constants of these oligonucleotides are 0.13, 4.7 and >30 microM respectively, revealing that increasing the proportion of C+.GC triplets ***increases*** triplex ***stability*** . The results suggest that the positive charge on the protonated cytosine contributes to triplex stability, either by a favourable interaction with the stacked pisystem or by screening the charge on the phosphate groups. In the presence of a naphthylquinoline triplex binding ligand all three oligonucleotides bind with similar affinities. At pH 6.0 these triplexes only form in the presence of the triplex binding ligand, while at pH 7.5 footprints are only seen with the oligonucleotide which generates the fewest number of C+.GC triplets (TTTTTTCTT) in the presence of the ligand.

=> d ibib abs l6 7

L6 ANSWER 7 OF 30 MEDLINE
ACCESSION NUMBER: 97478543 MEDLINE
DOCUMENT NUMBER: 97478543
TITLE: Triplex formation at physiological pH: comparative studies on DNA triplexes containing 5-Me-dC tethered at N4 with spermine and tetraethyleneoxyamine.
AUTHOR: Rajeev K G; Jadhav V R; Ganesh K N
CORPORATE SOURCE: Division of Organic Chemistry, National Chemical Laboratory, Pune 411008, India.
SOURCE: NUCLEIC ACIDS RESEARCH, ***(1997 Nov 1)*** 25 (21) 4187-93.
Journal code: O8L. ISSN: 0305-1048.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals; Cancer Journals
ENTRY MONTH: 199803
ENTRY WEEK: 19980303
AB Oligodeoxynucleotides with spermine conjugation at C4 of 5-Me-dC (sp -ODN) exhibit triple helix formation with complementary Watson-Crick duplexes, and were optimally stable at physiological pH 7.3 and low salt concentration. This was attributed to a favored reassociation of the polycationic third strand with the anionic DNA duplex. To gain further insights into the factors that contribute to the ***enhancement*** of triplex ***stability*** and for engineering improved triplex systems, the spermine appendage at C4 of 5-Me-dC was replaced with 1,11-diamino-3,6,9-trioxaundecane to create teg -ODNs. From the triple helix forming abilities of these modified ODNs studied by hysteresis behaviour and the effect of salts on triplex stability, it is demonstrated here that teg- ODNs stabilise triplexes through hydrophobic desolvation while sp -ODNs stabilise triplexes by charge effects. The results imply that factors in addition to base stacking effects and interstrand hydrogen bonds are significantly involved in modulation of triplex stability by base modified oligonucleotides.

=> d ibib abs l6 8

L6 ANSWER 8 OF 30 MEDLINE
ACCESSION NUMBER: 96423126 MEDLINE
DOCUMENT NUMBER: 96423126
TITLE: Effect of selective cytosine methylation and hydration on the conformations of DNA triple helices containing a TTTT loop structure by FT-IR spectroscopy.
AUTHOR: Fang Y; Bai C; Wei Y; Lin S B; Kan L
CORPORATE SOURCE: Institute of Chemistry, Academia Sinica, Beijing, China.
SOURCE: JOURNAL OF BIOMOLECULAR STRUCTURE AND DYNAMICS, ***(1995*** *** Dec)*** 13 (3) 471-82.
Journal code: AH2. ISSN: 0739-1102.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199702

ENTRY WEEK: 19970204

AB 5-Methylcytosines have been introduced into triplex-forming-oligonucleotides and shown to extend the pH range over which a triplex forms with a homopurine-homopyrimidine tract of duplex DNA. As a host strand, an oligodeoxypyrimidine with a base sequence of 5'-d(TC)3T4(CT)3 ([CC]) was designed to form a hairpin triplex with a 5'-d-A(GA)2G ([AG6]) purine strand at acidic pH (Tsay, et al., (1995) J. Biomol. Str. Dyn., 13, 1235-1245). We here present results obtained by FT-IR spectroscopy concerning the conformation of the hairpin triplex as a function of the selective substitution of cytosines by 5-methylcytosines in the host strand. Namely, cytosines are substituted by 5-methylcytosines in either the 3'-pyrimidine portion ([CM]) or the 5'-pyrimidine portion ([MC]) or in both ([MM]) of the host strand. The acidic-induced transitions of the equimolar mixtures of the purine target with either of the four pyrimidine oligomers gives rise to different apparent pK values, i.e., [MM].[AG6] (6.2) > [MC].[AG6] (6.0) > [CM].[AG6] (5.7) > [CC].[AG6] (5.2) > single-stranded oligopyrimidines (4.6 +/- 0.2), indicating that cytosine methylation expands the pH range compatible with the hairpin triplex formation regardless of whether the substitution is in the 5'-pyrimidine (Hoogsteen) portion or in the 3'-pyrimidine (Watson-Crick) portion. Thermal denaturation profiles indicated that all the triplexes denatured in a monophasic manner in the pH range of 4.0 to 7.0, and that cytosine methylations in any position of the 16-base pyrimidine oligomer ***increase*** the ***stability*** of the hairpin ***triplex*** ***DNA*** . IR spectra recorded in D2O and H2O solutions revealed that cytosine methylation does not significantly influence the conformation of ***triplex*** ***DNA*** in solution, i.e., all the four triplexes accept a similar sugar conformation, and predominately take on a S-type sugar pucker with a relative proportion of two S-type sugars for one N-type. Furthermore, we also investigated the effect of relative humidity (RH) on the conformation of triplex MC.AG6 in hydrated films, and found that the conformational change induced by the decrease of RH, from predominant S-type to primary N-type sugar pucker, might first occur in the purine strand at 86% RH.

=> d ibib abs l6 9-30

L6 ANSWER 9 OF 30 MEDLINE
ACCESSION NUMBER: 96155977 MEDLINE
DOCUMENT NUMBER: 96155977
TITLE: Interactions of intercalative and minor groove binding ligands with triplex poly(dA).[poly(dT)]2 and with duplex poly(dA).poly(dT) and poly[d(A-T)]2 studied by CD, LD, and normal absorption.
AUTHOR: Kim H K; Kim J M; Kim S K; Rodger A; Norden B
CORPORATE SOURCE: Department of Chemistry, College of Sciences, Yeungnam University, Kyoungsan City, Kyoung-buk, Republic of Korea.
SOURCE: BIOCHEMISTRY, ***(1996 Jan 30)*** 35 (4) 1187-94.
Journal code: A0G. ISSN: 0006-2960.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199605

AB The binding of 9-aminoacridine and one bis-acridine compound to double

helical poly(dA).poly-(dT) and poly[d(A-T)]2 and triple helical poly(dA).[poly(dT)]2 has been investigated using linear dichroism (LD) and circular dichroism (CD). A close examination of the negative reduced LD and the induced CD for the first pi-- pi* transition absorption region leads us to conclude that the acridine moiety of the 9-aminoacridine and bis-acridine molecule intercalates with both duplex and ***triplex*** ***DNA*** . Binding geometries of the acridine moieties in the examined polynucleotides are similar to those found for the ligands with DNA (Hansen et al. (1984) J. Chem. Soc., Chem. Commun., 509-511). It is also found that both 9-aminoacridine and bis-acridine effectively ***enhance*** the thermal ***stability*** of the ***triplex*** ***DNA*** . The corresponding spectra for the complexes of the minor groove binders DAPI and Hoechst with poly-(dA).[poly(dT)]2 were studied for comparison. They both show a positive LD and a mixing ratio dependent positive CD in the ligand absorption region, similar to those of their duplex complexes. This indicates that these ligands bind in the grooves of the triplex, probably to the one corresponding to the minor groove of the template duplex.

L6 ANSWER 10 OF 30 MEDLINE
ACCESSION NUMBER: 93360276 MEDLINE
DOCUMENT NUMBER: 93360276
TITLE: Characterization of a triple helix-specific ligand. BePI (3-methoxy-7H-8-methyl-11- [(3'-amino)propylamino]-benzo[e]pyrido[4,3-b]indole) intercalates into both double-helical and triple-helical DNA.
AUTHOR: Pilch D S; Waring M J; Sun J S; Rougee M; Nguyen C H; Bisagni E; Garestier T; Helene C
CORPORATE SOURCE: Laboratoire de Biophysique, Museum National d'Histoire Naturelle INSERM U 201, CNRS, UA 481, Paris, France..
SOURCE: JOURNAL OF MOLECULAR BIOLOGY, ***(1993 Aug 5)*** 232 (3) 926-46.
Journal code: J6V. ISSN: 0022-2836.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals; Cancer Journals
ENTRY MONTH: 199311

AB A benzo[e]pyridoindole derivative, 3-methoxy-7H-8-methyl-11-[(3'-amino)propylamino] -benzo[e]pyrido[4,3-b]indole (BePI), and its interactions with double and triple-helical DNA have been investigated by a variety of fluorescence, spectrophotometric, hydrodynamic and molecular modeling techniques. Binding to DNA stabilizes the doubly charged (+2) form of BePI, increasing the apparent pKa of the 10-NH proton by approximately 1 pH unit. Binding to DNA also quenches the fluorescence of BePI, with a greater extent of quenching upon binding ***triplex*** relative to duplex ***DNA*** . BePI preferentially binds (and stabilizes) triple-helical relative to double-helical DNA. This preferential binding is not restricted to triplexes containing solely T x A.T base triplets. In addition, BePI preferentially stabilizes the poly(dA).poly(dT) relative to the poly[d(A-T)].poly[d(A-T)] duplex. Viscosity studies demonstrate that, upon binding, BePI induces the unwinding of negative supercoils in the pBR322 plasmid, and increases the relative contour lengths of double and triple-helical polydeoxynucleotides. Fluorescence studies reveal that energy transfer occurs from polynucleotide bases to bound BePI molecules in both BePI/duplex and BePI/triplex complexes. In a BePI/triplex complex, an

average of 4.8 bases appear to transfer excitation energy totally to a bound BePI molecule, while in various BePI/duplex complexes an average of only 2.5 bases appear to do so, indicating that energy transfer is more efficient in the former complex. Measurements of fluorescence quenching indicate that BePI is protected from quenching by acrylamide when bound to either double or triple-helical polynucleotides. The viscosity and fluorescence behavior of BePI are fully consistent with the conclusion that BePI intercalates into both double and triple-helical DNA. Molecular modeling studies suggest that stronger stacking interactions between intercalated BePI and adjacent bases in BePI/triplex relative to BePI/duplex complexes may account for the ***enhanced*** thermal ***stability*** of the former complex.

L6 ANSWER 11 OF 30 MEDLINE
ACCESSION NUMBER: 92339503 MEDLINE
DOCUMENT NUMBER: 92339503
TITLE: Oligo(2'-O methyl)ribonucleotides. Effective probes for duplex DNA.
AUTHOR: Shimizu M; Konishi A; Shimada Y; Inoue H; Ohtsuka E
CORPORATE SOURCE: Faculty of Pharmaceutical Sciences, Hokkaido University, Sapporo, Japan..
SOURCE: FEBS LETTERS, ***(1992 May 11)*** 302 (2) 155-8.
Journal code: EUH. ISSN: 0014-5793.
PUB. COUNTRY: Netherlands
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals; Cancer Journals
ENTRY MONTH: 199210
AB To find novel probes for duplex DNA, we prepared four types of triplexes containing a homopurine-homopyrimidine 15-mer duplex DNA, and examined their thermal stabilities (Tm values). The single strand used for ***triplex*** formation were a ***DNA*** 15-mer having a defined C-T
mixed sequence, and its sugar-modified analogs, namely 2'-fluoro DNA, RNA, and 2'-O-methyl RNA. The 2'-O-methyl RNA and the RNA-containing triplexes were similar in their ***enhanced*** ***stabilities*** at pH 6.1 and, amongst the four triplexes, the 2'-O-methyl was the most stable at pH 5.0. Furthermore, an experiment using a 34-mer duplex DNA suggested that the 2'-O-methyl RNA-triplex was destabilized, mostly as a result of the incorporation of a mismatched triplet, as compared to the DNA triplex counterpart. Thus, 2'-O-methyl RNA can serve as an effective probe for duplex DNA.

L6 ANSWER 12 OF 30 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1999:3303 CAPLUS
DOCUMENT NUMBER: 130:61991
TITLE: Inhibition of viruses by antisense oligomers capable of binding to polypurine rich tract of single-stranded rna or rna-dna hybrids
INVENTOR(S): Moelling, Karin
PATENT ASSIGNEE(S): Max-Planck-Gesellschaft Zur Forderung Der Wissenschafter E.V., Germany
SOURCE: U.S., 23 pp., Cont.-in-part of U.S. Ser. No. 954,184, abandoned.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5849900	A	19981215	US 1995-412376	19950328 <--
PRIORITY APPLN. INFO.:			US 1992-954184	19920929

AB The present invention provides methods of inhibiting a virus with which a vertebrate is infected and which replicates via an RNA template comprising the administration of an antisense or triplex-forming oligonucleotide or a deriv. thereof capable of binding to a polypurine-rich tract in a region of single-stranded RNA or RNA-DNA hybrid, resp. Chimeric oligonucleotides capable of forming triplex structures with single-stranded nucleic acids are also disclosed. These chimeric oligonucleotides are of the general formula 5'-A-B-C-3' where A comprises a sequence complementary to the PPT in parallel orientation, segment B comprises a linker, and segment C comprises a sequence complementary to PPT in antiparallel orientation.

L6 ANSWER 13 OF 30 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1998:667144 CAPLUS
DOCUMENT NUMBER: 130:48792
TITLE: Systematic mutation in the third strand of a purine motif DNA triple helix : a story of a molecule which hides its tail
AUTHOR(S): Mills, Martin; Klump, Horst H.
CORPORATE SOURCE: Department of Biochemistry, University of Cape Town, Rondebosch, S. Afr.
SOURCE: Nucleosides Nucleotides (***1998***), 17(9-11), 1919-1936
CODEN: NUNUD5; ISSN: 0732-8311
PUBLISHER: Marcel Dekker, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A DNA triple helix formed according to the Purine-motif can accommodate both purines and pyrimidines in the third strand in a pH independent manner. This motif is thus a more versatile means of targeting double stranded DNA than the pH dependent Pyrimidine motif. In this paper we assess the impact of systematically replacing thymine with adenine, inosine or cytosine in the third strand. To this aim we have designed a double length, 22-mer "purine" strand to target a 9-mer pyrimidine strand such that the extending tail acts as the third strand (reversed-Hoogsteen strand) which is antiparallel to the purine strand of the underlying WC duplex. By systematically replacing thymines with adenines in the reversed-Hoogsteen strand there is an ***increase*** in the ***stability*** (Tm) of the triplex, particularly when the sequence closest to the loop consists of a stack of purines. Further substitution towards the 3' end of the third strand reverses the stability. Systematic mutations in the third strand next to the loop reveal that the stability of the triads can be ranked according to their effect on Tm in the following order: A-AT > T-AT = I-AT > C-AT where C is considered a mismatch.

L6 ANSWER 14 OF 30 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1998:641013 CAPLUS
DOCUMENT NUMBER: 130:25257
TITLE: Tailored Hydrophobic Cavities in Oligonucleotide-Steroid Conjugates

AUTHOR(S): Letsinger, Robert L.; Chaturvedi, Surendrakumar
CORPORATE SOURCE: Department of Chemistry and Department of Biochemistry, Molecular Biology, and Cell Biology, Northwestern University, Evanston, IL, 60208, USA
SOURCE: Bioconjugate Chem. (***1998***), 9(6), 826-830
CODEN: BCCHES; ISSN: 1043-1802
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Hydrophobic pockets can be generated readily in aq. soln. by hybridization of oligonucleotide conjugates contg. one or two androstane units inserted into each strand by short phosphoryl linkers. Both double- and triple-stranded complexes formed by the conjugates are stabilized by adding to the soln. a water-sol. hydrophobic substrate, 3,17-diamino-androstane dihydrochloride, that can bind in the pocket. This substrate has no effect on the dissocn. of unmodified oligonucleotides, and 1,10-diamino-decane dihydrochloride has no effect on dissocn. of complexes of these steroid conjugates under the same conditions. This system provides a new means for selectively modulating and triggering hybridization of oligonucleotide conjugates. Cetyltrimethylammonium bromide strongly ***enhances*** the ***stability*** of complexes of the steroid conjugates; however, it also leads to pptn. of complexes of unmodified oligonucleotides.

L6 ANSWER 15 OF 30 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1998:316637 CAPLUS
DOCUMENT NUMBER: 129:24620
TITLE: A new twist to an old tale: the influence of the exchange of thymine for adenine on the stability of a purine motif DNA triple helix
AUTHOR(S): Mills, Martin; Klump, Horst H.
CORPORATE SOURCE: Dep. Biochem., Univ. Cape Town, Rondebosch, 7700, S. Afr.
SOURCE: S. Afr. J. Chem. (***1997***), 50(4), 184-188
CODEN: SAJCDG; ISSN: 0379-4350
PUBLISHER: South African Chemical Institute
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Conventional way to discriminate between DNA triple helixes is to group them according to the compn. of the third strand. The pyrimidine motif has an all-pyrimidine third strand leading to C+-G.C and T-A.T triads. The purine motif, on the other hand, can accommodate both purines and pyrimidines resulting in G-G.C, A-A.T and T-A.T triads. The second set of triad formation is pH independent. In this paper we assess the impact of mutating pyrimidines for purines in the third strand. To this end we have designed a double length purine strand to target a 9-mer pyrimidine strand such that the 'third strand' is antiparallel to the purine strand of the underlying WC duplex. Adenine is systematically incorporated in place of thymine in a series of deriv. sequences. As A systematically replaces T there is an ***increase*** in thermal ***stability*** (Tm) of the triplex of about 4.degree.C (100 mM Li+, 20 nM Mg2+, pH 7.0) until 50% of the third strand is adenine, i.e., 5 Ts have been replaced. On further mutations there is a change in trend until all 4 Ts are replaced by A. The rise in stability is due to favorable stacking interactions which are gained by introducing the large purine bases into the third strand until an optimum stacking unit has been formed. Further substitution only

serves to destabilize the structure, possibly by distorting the duplex.

L6 ANSWER 16 OF 30 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1998:81653 CAPLUS
DOCUMENT NUMBER: 128:150319
TITLE: Inhibition of Transcription of the Human c-myc Protooncogene by Intermolecular Triplex
AUTHOR(S): Kim, Hyung-Gyoon; Reddoch, James F.; Mayfield, Charles; Ebbinghaus, Scot; Vigneswaran, Nadarajah; Thomas, Sheila; Miller, Donald M.
CORPORATE SOURCE: Department of Biochemistry and Molecular Genetics and Bolden Laboratory, University of Alabama, Birmingham, AL, 35294-0001, USA
SOURCE: Biochemistry (***1998***), 37(8), 2299-2304
CODEN: BICHAW; ISSN: 0006-2960
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Triplex-forming oligonucleotides (TFOs) have been shown to inhibit both transcription in vitro and the expression of target genes in cell culture by binding to polypurine/polypyrimidine sequences in several human gene promoters. The c-myc protooncogene is overexpressed in a variety of human cancers and appears to play an important role in the proliferation of these cells. In an attempt to assay the ability of triplex-forming oligonucleotides to inhibit expression of a target gene in vivo, we have developed a cellular system involving transfection of a c-myc promoter-driven luciferase reporter plasmid with triplex-forming oligonucleotides targeted to the human c-myc protooncogene. To ***increase*** the ***stability*** of the TFO, we have used modified phosphorothioate oligonucleotides. Triplex formation with a modified phosphorothioate oligonucleotide occurs with approx. equal binding affinity as that seen using a phosphodiester oligonucleotide. Phosphorothioate-modified TFOs targeted to c-myc inhibit transcription of the c-myc promoter in HeLa cells as demonstrated by a decrease in luciferase expression from a luciferase reporter gene construct. These results suggests that triplex formation may represent a gene-specific means of inhibiting specific protooncogene expression.

L6 ANSWER 17 OF 30 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1998:81586 CAPLUS
DOCUMENT NUMBER: 128:98441
TITLE: A Novel Triplex-Forming Oligonucleotide Targeted to Human Cyclin D1 (bcl-1, Proto oncogene) Promoter Inhibits Transcription in HeLa Cells
AUTHOR(S): Kim, Hyung-Gyoon; Miller, Donald M.
CORPORATE SOURCE: Department of Biochemistry and Molecular Genetics, Comprehensive Cancer Center, Birmingham, AL, 35294-0001, USA
SOURCE: Biochemistry (***1998***), 37(8), 2666-2672
CODEN: BICHAW; ISSN: 0006-2960
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The cyclin D1/bcl-1 proto-oncogene is one of a series of genes encoding proteins which regulate the cell cycle and are involved in the multistep process of tumorigenesis. Translocation of the cyclin D1 proto-oncogene

is a common event in B cell lymphoma, and cyclin D1 amplification occurs in breast, esophageal, hepatocellular, and head/neck carcinomas. The human cyclin D1 proto-oncogene promoter contains an 18-base pair purine-pyrimidine rich motif with three C.cntdot.G interruptions. This motif is a potential target for purine.cntdot.purine.cntdot.pyrimidine triplex formation. We have designed a G-rich antiparallel triplex forming oligonucleotide (TFO) targeted to this region. Electrophoretic mobility shift anal. (EMSA) shows that this purine-pyrimidine rich motif is a binding site for the transcription factor Sp1 and that triplex formation by the target sequence prevents the binding of recombinant Sp1. The exact location of triplex formation was confirmed by DNase I footprinting. In an attempt to ***increase*** ***stability*** , we have used modified phosphorothioate oligonucleotides for cell culture expts. Triplex formation by the cyclin D1 targeted phosphorothioate oligonucleotide occurs with a binding affinity approx. equal to that of phosphodiester oligonucleotides. This phosphorothioate modified TFO targeted to cyclin D1 also inhibits transcription of the cyclin D1 promoter in HeLa cells, as demonstrated by a decrease in luciferase expression from a stably integrated human cyclin D1 promoter driven luciferase construct. This suggests that triplex formation may represent a gene specific means of inhibiting cyclin D1 expression.

L6 ANSWER 18 OF 30 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1997:473042 CAPLUS
DOCUMENT NUMBER: 127:200605
TITLE: Recent developments in triple-helix regulation of gene expression
AUTHOR(S): Neidle, Stephen
CORPORATE SOURCE: CRC Biomolecular Structure Unit, Inst. Cancer Res., Sutton, SM2 5NG, UK
SOURCE: Anti-Cancer Drug Des. (***1997***), 12(5), 433-442
CODEN: ACDDEA; ISSN: 0266-9536
PUBLISHER: Oxford University Press
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English
AB A review with 46 refs. on recent progress in biol. studies of the effects of intermol. triplex formation, as well as devising ways to ***enhance*** triplex ***stability*** . Although therapeutic evaluation is some years away and clin. utility is still a distant goal, sufficient is now known about the scope and limitations of triplex effects, as well as oligonucleotide pharmacokinetics, for on to be optimistic that the first in vivo steps to therapeutics will take place in the near future.

L6 ANSWER 19 OF 30 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1997:464545 CAPLUS
DOCUMENT NUMBER: 127:149290
TITLE: Molecular design for the antigene method, chemical regulation of genetic expression based on the triplex formation
AUTHOR(S): Sasaki, Shigeki
CORPORATE SOURCE: Fac. Pharm. Sci., Kyushu Univ., Fukuoka, 812-82, Japan
SOURCE: Yuki Gosei Kagaku Kyokaishi (***1997***), 55(7), 590-599
CODEN: YGKKAE; ISSN: 0037-9980
PUBLISHER: Yuki Gosei Kagaku Kyokai
DOCUMENT TYPE: Journal; General Review

LANGUAGE: Japanese

AB A review with 39 refs. on mol. design to stabilize triplex at a TA or a CG interrupting site, including new recognition mols. which were shown by the reviewer and coworkers to be specific toward each base pair. Some method to ***enhance*** ***stability*** of ***triplexes*** with use of ***DNA*** binding mols. such as intercalators, crosslinking agents, and groove binders are also discussed.

L6 ANSWER 20 OF 30 CAPLUS COPYRIGHT 2000 ACS

ACCESSION NUMBER: 1997:444917 CAPLUS

DOCUMENT NUMBER: 127:186216

TITLE: Modulation of nucleic acid structure by ligand binding: induction of a DNA.cntdot.RNA.cntdot.DNA hybrid triplex by DAPI intercalation

AUTHOR(S): Xu, Zhitao; Pilch, Daniel S.; Srinivasan, A. R.; Olson, Wilma K.; Geacintov, Nicholas E.; Breslauer, Kenneth J.

CORPORATE SOURCE: Department of Chemistry, Rutgers-The State University of New Jersey, New Brunswick, NJ, 08903, USA

SOURCE: Bioorg. Med. Chem. (***1997***), 5(6), 1137-1147
CODEN: BMECEP; ISSN: 0968-0896

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The arom. diamidine, DAPI (4',6-diamidino-2-phenylindole), is used as an important biol. and cytol. tool since it forms highly fluorescent complexes with nucleic acid duplexes via minor groove-directed/intercalative modes of interaction. In this study, we find that DAPI binding can induce the formation of an RNA-DNA hybrid triplex that would not otherwise form. More specifically, through application of a broad range of spectroscopic, viscometric, and mol. modeling techniques, we demonstrate that DAPI intercalation induces the formation of the poly(dT).cntdot.poly(rA).cntdot.poly(dT) hybrid triple helix, a structure which does not form in the absence of the ligand. Using UV mixing studies, we demonstrate that, in the presence of DAPI, the poly(rA).cntdot.poly(dT) duplex and the poly(dT) single strand form a 1:1 complex (a triplex) that does not form in the absence of DAPI. Through temp.-dependent absorbance measurements, we show that the poly(dT).cntdot.poly(rA).cntdot.poly(dT) triplex melts via two distinct transitions: initial conversion of the triplex to the duplex state, with the DAPI remaining bound, followed by denaturation of the duplex-DAPI complex to its component single strands and free DAPI. Using optical melting profiles, we show that DAPI binding ***enhances*** the thermal ***stability*** of the poly(dT).cntdot.poly(rA).cntdot.poly(dT) triplex, an observation consistent with the preferential binding of the ligand to the triplex vs. the duplex and single-stranded states. Our differential scanning calorimetric measurements reveal melting of the DAPI-satd. poly(dT).cntdot.poly(rA).cntdot.poly(dT) triplex to be assocd. with a lower enthalpy but greater cooperativity than melting of the corresponding DAPI-satd. poly(rA).cntdot.poly(dT) duplex. Our flow linear dichroism and viscometric data are consistent with an intercalative mode of binding when DAPI interacts with both the poly(dT).cntdot.poly(rA).cntdot.poly(dT) triplex and the poly(rA).cntdot.poly(dT) duplex. Finally, computer modeling studies suggest that a combination of both stacking and electrostatic interactions between the intercalated ligand and the host nucleic acid play important roles in the DAPI-induced stabilization of the

poly(dT).cntdot.poly(rA).cntdot.poly(dT) triplex. In the aggregate, our results demonstrate that ligand binding can be used to induce the formation of triplex structures that do not form in the absence of the ligand. This triplex-inducing capacity has potentially important implications in the design of novel antisense, antigene, antiviral, and diagnostic strategies.

L6 ANSWER 21 OF 30 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1997:426111 CAPLUS
DOCUMENT NUMBER: 127:46613
TITLE: Regulation of DNA triple helix formation by rare earth metal ions
AUTHOR(S): Sueda, S.; Ihara, T.; Takagi, M.
CORPORATE SOURCE: Department Chemical Science Technology, Faculty Engineering, Kyushu University, Fukuoka, 812-81, Japan
SOURCE: Kidorui (***1997***), 30, 370-371
CODEN: KIDOEP; ISSN: 0910-2205
PUBLISHER: Nippon Kidorui Gakkai
DOCUMENT TYPE: Journal
LANGUAGE: Japanese
AB Oligonucleotide can bind to double helix DNA by forming a triple helix. In order to regulate the triple helix formation of oligonucleotide with double helix DNA by metal ions, we synthesized oligonucleotides modified with iminodiacetic acid (IDA). It is well-known that IDA forms 1:2 complexes with various metal ions. Thus, IDA-modified oligonucleotide can bind to DNA as a dimer in the presence of appropriate metal ions. The DNA binding behavior of IDA-modified oligonucleotide was studied by the melting expts. of the complexes (DNA triple helix). The melting temp. of triple helix (the stability of triple helix) was increased by addn. of some rare earth metal ions. The obsd. ***enhancement*** of ***stability*** of the triple helix was accounted for by cooperative binding of two oligonucleotides, i.e., dimerization of oligonucleotides.

L6 ANSWER 22 OF 30 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1997:185635 CAPLUS
DOCUMENT NUMBER: 126:289500
TITLE: Hydrated water molecules of pyrimidine/purine/pyrimidine DNA triple helixes as revealed by FT-IR spectroscopy: a role of cytosine methylation
AUTHOR(S): Fang, Ye; Wei, Ying; Bai, Chunli; Tang, Youqi; Lin, Shwu-Bin; Kan, Lou-sing
CORPORATE SOURCE: Inst. Chem., Academia Sinica, Beijing, 100080, Peop. Rep. China
SOURCE: J. Biomol. Struct. Dyn. (***1997***), 14(4), 485-493
CODEN: JBSDD6; ISSN: 0739-1102
PUBLISHER: Adenine Press
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Hydrated water mols. of a pyrimidine/purine/pyrimidine DNA hairpin triplex were studied via FT-IR spectroscopy in a hydrated film by a comparison of triplex (CC.cntdot.AG6) formed by a host oligodeoxypyrimidine of 5'-d(TC)3T4(CT)3 (CC) with a target hexadeoxypurine 5'-d(AG)3 (AG6) strand and by triplexes (MM.cntdot.AG6, MC.cntdot.AG6, and CM.cntdot.AG6) formed by oligonucleotides with the exact sequences as above, except 5-methylcytosine replaced all (MM), 5' end half (MC), and 3' end half (CM)

cytosine bases in CC. The results revealed that: (i) all these triplexes have a similar hydration pattern, in which water mols. probably bound in the N7 sites of adenines and guanines in the Crick-Hoogsteen groove, and to the Me group of thymidines in the Watson-Hoogsteen groove. There are also some bound water mols. found at the O2 sites of thymines in both Watson-Crick and Crick-Hoogsteen grooves. (Ii) In the CC.cntdot.AG6 triplex, the S-type sugars are always dominant in all hydrated states, whereas in the MM.cntdot.AG6 triplex, the relative population of the N-type sugars is very close to that of the S-type between 86% and 66% humidity. Furthermore, the sugar conformation in two partially modified triplexes (CM.cntdot.AG6, and MC.cntdot.AG6) are dominated by the N-type at lower humidity. This phenomenon might reflect that the degree of bound water varies among the binding sites of bases. (Iii) The effect of introducing a Me group on cytosine is to generate a spine of hydrophobic region in MM (MC and MD). The enlarging hydrophobic area not only ***increases*** the ***stability*** in soln., but also the stability
in sodium hydrated films of the pyrimidine/purine/pyrimidine hairpin triplexes.

L6 ANSWER 23 OF 30 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1997:38798 CAPLUS
DOCUMENT NUMBER: 126:56631
TITLE: Pyrimidine targeting hairpin triplex-forming oligonucleotides
INVENTOR(S): Kandimalla, Ekambar R.; Agrawal, Sudhir
PATENT ASSIGNEE(S): Hybridon, Inc., USA; Kandimalla, Ekambar R.; Agrawal, Sudhir
SOURCE: PCT Int. Appl., 47 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9635706	A1	19961114	WO 1996-US6718	19960510 <--
W: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK				
RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
AU 9657413	A1	19961129	AU 1996-57413	19960510 <--
PRIORITY APPLN. INFO.:			US 1995-438975	19950511
			WO 1996-US6718	19960510

AB Hairpin triplex-forming oligonucleotides that target pyrimidine nucleic acids are disclosed. The oligonucleotides of the invention are characterized by having a duplex-forming region, a triplex-forming region, and a linker region wherein one of the internucleoside linkages between the duplex-forming and triplex-forming region is a 5'-5' or 3'-3' linkage. The duplex-forming region is comprised of purine nucleosides and has a sequence substantially complementary to a pyridine region of a target nucleic acid. The triplex-forming region is comprised of pyrimidine nucleosides and is substantially complementary in the Watson-Crick sense

to the duplex-forming region. The linker region is comprised of nucleotides or other moieties that link the duplex- and triplex-forming regions. In the absence of target, the hairpin triplex-forming oligonucleotide folds back upon itself, the duplex- and triplex-forming regions running in parallel. In the presence of target nucleic acids, the duplex-forming region binds to the target by Watson-Crick bonding, and the triplex-forming region by Hoogsteen bonding, forming a triplex. The disclosed oligonucleotides display ***increased*** ***stability*** and are useful for modulating gene expression.

L6 ANSWER 24 OF 30 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1996:323735 CAPLUS
DOCUMENT NUMBER: 125:79636
TITLE: A Parallel-Stranded DNA Triplex Tethering a Hoechst 33258 Analog Results in Complex Stabilization by Simultaneous Major Groove and Minor Groove Binding
AUTHOR(S): Pobles, Jordi; Rajur, Sharanabasava B.; McLaughlin, Larry W.
CORPORATE SOURCE: Merkert Chemistry Center, Boston College, Chestnut Hill, MA, 02167, USA
SOURCE: J. Am. Chem. Soc. (***1996***), 118(24), 5820-5821
CODEN: JACSAT; ISSN: 0002-7863
DOCUMENT TYPE: Journal
LANGUAGE: English
AB An oligonucleotide-bisbenzimidazole conjugate has been prepd. by tethering a hexa(ethylene glycol) linker to the fluorophore Hoechst 33258 and coupling the linker to the 5'-terminus of a polypyrimidine oligonucleotide. The coupling employed a "reversed" protocol, i.e., the 5'-terminus of the fully protected support-bound oligonucleotide was converted to the phosphoramidite deriv., and then the dye tethering the hexa(ethylene glycol) linker was added to the support in the presence of tetrazole. Coupling yields of approx. 75% between the linker and the oligonucleotide were achieved by this procedure. The linker design in this conjugate must permit the polypyrimidine strand to bind in the major groove, while the Hoechst dye binds in the minor groove. The conjugate is obsd. to increase the Tm values for DNA triplexes by as much as 18.degree. relative to the non-conjugated sequences. A 15-mer tethering the bisbenzimidazole dye in the presence of spermine results in a triplex Tm value in excess of 50.degree.. Complex formation results in an enhanced emission max. for the tethered Hoechst 33258 fluorophore. Monitoring the fluorescent spectrum for the dye over a wide temp. range (10-90.degree.) results in a sigmoidal curve with a midpoint for the transition generally near the Tm value measured for the DNA triplex. This characteristic suggests that the Hoechst deriv. remains largely bound to the three-stranded complex until the Tm for the triplex is reached. With the described conjugate, major groove binding by the third strand occurs simultaneously with minor groove binding by the tethered ligand. The result of both types of binding is an overall ***increase*** in triplex ***stability*** .

L6 ANSWER 25 OF 30 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1995:542047 CAPLUS
DOCUMENT NUMBER: 123:112627
TITLE: Synthesis of the Polycation Thymidyl DNG, Its Fidelity in Binding Polyanionic DNA/RNA, and the Stability and Nature of the Hybrid Complexes
AUTHOR(S): Dempcy, Robert O.; Browne, Kenneth A.; Bruice, Thomas

C.
CORPORATE SOURCE: Department of Chemistry, University of California, Santa Barbara, CA, 93106, USA
SOURCE: J. Am. Chem. Soc. (***1995***), 117(22), 6140-1
CODEN: JACSAT; ISSN: 0002-7863
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Replacement of the neg. phosphodiester {-O-(PO2-)-O-} linkages of DNA with pos. charged guanidinium linkages {-NH-C(:NH2+)-NH-} provides deoxyribonucleic guanidine (DNG). A pentameric thymidyl DNG {d(Tg)4T-azido (I)} has been synthesized and shown to anneal with complementary poly(dA) and poly(rA) but no tendency to assoc. by base pairing with p(dG)12-18, poly(dC), poly(rG), poly(rC), or poly(rU) was exhibited. Thermal denaturation of poly(dA) and poly(rA) complexes with d(Tg)4T-azido establishes two denaturation temps. (Tm) assignable to triple {I2.cntdot.poly(dA) and I2.cntdot.poly(rA)} and double {I.cntdot.poly(dA) and I.cntdot.poly(rA)} helical structures. Increasing ionic strength (.mu.) decreases electrostatic interactions such that an increase in .mu. ***increases*** the ***stability*** (Tm) of DNA complexes with DNA and RNA while the Tm of DNG complexes with DNA and RNA increases with decreasing .mu.. To conclude: Triple and double helical structures of DNG with DNA and RNA have unprecedented stability at physiol. .mu. and DNG exhibits fidelity in base pairing. These characteristics, as well as the stability of DNG in the presence of nucleases, are requirements of putative antigene/antisense agents.

L6 ANSWER 26 OF 30 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1995:535090 CAPLUS
DOCUMENT NUMBER: 123:136165
TITLE: Interaction of ethidium bromide with a ***triplex*** ***DNA*** dA10.cntdot.2dT10
AUTHOR(S): Fang, Ye; Bai, Chun-Li; Zhang, Ping-Cheng; Cao, En-Hua; He, Yu-Jian; Tang, You-Qi
CORPORATE SOURCE: Institute Chemistry, Academia Sinica, Beijing, 100080, Peop. Rep. China
SOURCE: Sci. China, Ser. B (***1994***), 37(11), 1306-12
CODEN: SCBSE5; ISSN: 1001-652X
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The prepns., formation conditions and stabilities of the duplex dA10.cntdot.dT10 and the triplex dA10.cntdot.2dT10, and their interactions with ethidium bromide in an appropriate buffer are reported. Fluorescence spectra show that ethidium can be used as a useful fluorescence probe to detect triplex formation, and its fluorescence is significantly increased by either the duplex or triplex, but less in the case of the triplex. Thermal denaturation profiles demonstrate that the stability of the triplex is enhanced by ethidium. Fluorescence energy transfer studies suggest the existence of similar energy transfer from the triplex or duplex to the bound ethidium, but the presence of the triplex results in substantially smaller energy transfer than does that of the duplex. Furthermore, fluorescence quenching using the anionic quencher [Fe(CN)6]4- cannot decrease the fluorescence intensities of the triplex/ethidium complex. These results demonstrate that ethidium has a significant binding affinity with the triplex and interacts with it via an intercalation mechanism, thus ***increasing*** its ***stability*** .

L6 ANSWER 27 OF 30 BIOTECHDS COPYRIGHT 2000 DERWENT INFORMATION LTD
ACCESSION NUMBER: 1998-09020 BIOTECHDS
TITLE: ***Enhancing*** ***stability*** of ***triplexes*** formed from ***nucleic*** acid strands; triple helix stability enhancer, e.g. cation, cationic lipid, dimethyl sulfoxide, polyethylene glycol or alcohol, used as DNA probe, etc.
AUTHOR: Fresco J R; LaVelle J L R
PATENT ASSIGNEE: Univ.Princeton
LOCATION: Princeton, NJ, USA.
PATENT INFO: WO 9829428 ***9 Jul 1998***
APPLICATION INFO: WO 1998-US246 2 Jan 1998
PRIORITY INFO: US 1997-34594 2 Jan 1997
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: WPI: 1998-388026 [33]
AN 1998-09020 BIOTECHDS
AB A new method of ***enhancing*** the ***stability*** of a triple helix formed from one or more nucleic acid strands in a solution involves adding (before or after triple helix formation) a water structure-making substance other than an alkali metal cation, a tetramethylammonium cation or polyamine. Also claimed is a triple helix prepared using the new method. The water structure-making substance may be a cation, e.g. acetate, phosphate, sulfate, cyanate, isocyanate, isothiocyanate, tetraethylammonium, methylammonium, dimethylammonium or trimethylammonium, or a cationic lipid, e.g. cetyltrimethyl ammonium, 2,3-dioleyloxy-N-(2(sperminecarboxamido) ethyl)-N,N-dimethyl-1-propammonium or tridodecylmethylammonium. The substance may also be dimethyl sulfoxide, polyethylene glycol or an alcohol, especially methanol, ethanol or isopropanol. The third strand may be DNA or RNA and the substance may be covalently linked to the third strand. The substances act by facilitating the unwinding of the duplex to the extent needed to accommodate the third strand and by facilitating the removal of water from the major groove to permit third strand binding which may be a DNA probe. (34pp)

L6 ANSWER 28 OF 30 BIOTECHDS COPYRIGHT 2000 DERWENT INFORMATION LTD
ACCESSION NUMBER: 1994-14769 BIOTECHDS
TITLE: New recombinant DNA overexpressing stem-loop DNA; vector with a separate inducible promoter-operator, RNA primer sequence and inverted repeat, for random mutagenesis in Escherichia coli, ***triplex*** ***DNA*** or antisense ***DNA*** production, etc.
PATENT ASSIGNEE: Univ.New-Jersey-State
PATENT INFO: WO 9420639 ***15 Sep 1994***
APPLICATION INFO: WO 1994-US2169 1 Mar 1994
PRIORITY INFO: US 1993-24676 1 Mar 1993
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: WPI: 1994-303044 [37]
AN 1994-14769 BIOTECHDS
AB A new recombinant self-replicating DNA sequence for overexpressing stem-loop DNA in a compatible host has the following elements: a strong inducible promoter-operator; DNA encoding an RNA primer (primase or RNAII primer) for stem-loop DNA production; an inverted repeat; and a replication origin (other than from a plasmid pUC vector) which directs replication of the plasmid independently from stem-loop DNA biosynthesis.

The primer produced on induction of the promoter anneals only to the replication origin upstream of the inverted repeat. The DNA may be inserted in an Escherichia coli plasmid, with a foreign DNA antisense sequence between the primer and inverted repeat sequence, or in the inverted repeat. The stem-loop DNA, which is single-stranded, is useful for generating random mutations in genes (to give proteins with new or improved properties), to form ***triplex*** ***DNA*** of ***increased*** ***stability*** , as antisense DNA molecules for regulation of gene expression, and as single primers in the polymerase chain reaction. Higher yields of stem-loop DNA than previously possible may be produced in prokaryotes by this method. (90pp)

L6 ANSWER 29 OF 30 BIOTECHDS COPYRIGHT 2000 DERWENT INFORMATION LTD
ACCESSION NUMBER: 1994-14167 BIOTECHDS
TITLE: Ligand-induced formation of nucleic acid triple helices; ***triplex*** ***DNA*** and ***triplex*** ***DNA*** -RNA- ***DNA*** induction; implications for design of antisense RNA, antisense DNA, antigene and diagnostic strategies
AUTHOR: Pilch D S; *Breslauer K J
CORPORATE SOURCE: Univ.New-Jersey-State
LOCATION: Department of Chemistry, Rutgers-The State University of New Jersey, New Brunswick, NJ 08903, USA.
SOURCE: Proc.Natl.Acad.Sci.U.S.A.; (***1994***) 91, 20, 9332-36
CODEN: PNASA6
DOCUMENT TYPE: Journal
LANGUAGE: English
AN 1994-14167 BIOTECHDS
AB Ligand binding was demonstrated to induce the formation of triplex structures that would not otherwise have formed. Thus, binding of berenil or 4',6-diamidino-2-phenylindole (DAPI) induced formation of the poly(rA).poly(rA).poly(dT) triplex, providing an example of an RNA(purine).RNA(purine).DNA(pyrimidine) triplex. Binding of berenil, DAPI, ethidium, or netropsin was also demonstrated to induce formation of the poly(dT).poly(rA).poly(dT) triplex, thereby overcoming a practical limitation to the formation of DNA.RNA.DNA triplexes with a purine RNA strand. Based on the ***enhanced*** thermal ***stabilities*** of the drug-bound poly(dT).poly(rA).poly(dT) complexes at 18 mM Na+, the relative triplex-inducing efficiencies of these 4 ligands were showed to decrease in the order: berenil, DAPI, ethidium, netropsin. The results demonstrate that ligand binding can be used to induce the formation of triplex structures that do not form in the absence of the ligand. This triplex-inducing capacity has potentially important implications in the design of novel antisense, antigene, and diagnostic strategies. (52 ref)

L6 ANSWER 30 OF 30 BIOTECHDS COPYRIGHT 2000 DERWENT INFORMATION LTD
ACCESSION NUMBER: 1993-05055 BIOTECHDS
TITLE: Synthesis of novel single-stranded stem-loop DNA; secondary structure formation in Escherichia coli using plasmid pUCK106 with a beta-galactosidase gene for use in random mutagenesis, ***triplex*** ***DNA*** formation, AIDS gene therapy, etc.
PATENT ASSIGNEE: Univ.Med.Dent.New-Jersey
PATENT INFO: EP 530112 ***3 Mar 1993***
APPLICATION INFO: EP 1992-402366 28 Aug 1992
PRIORITY INFO: US 1991-755111 30 Aug 1991
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OTHER SOURCE: WPI: 1993-069113 [09]
AN 1993-05055 BIOTECHDS
AB A novel single-stranded (ss) DNA molecule has a stem-loop structure, where the stem consists of duplex DNA of annealed complementary bases, and forms, at 1 end, the 5'- and 3'-termini of the ssDNA, and an ss loop at the other end. The ssDNA is produced using a DNA template containing a priming site and a downstream inverted repeat (IR), a DNA primer and a DNA-polymerase (EC-2.7.7.7). The ssDNA is produced by priming the template, polymerizing ssDNA from the primer using 1 strand as a template, stopping polymerization within the IR, allowing complementary bases within the new strain at the IR to anneal to form a loop, resuming polymerization using the new strand and/or other strand as a template, and separating the ssDNA. The system may be carried out using plasmid pUCK106 in Escherichia coli, with a beta-galactosidase (EC-3.2.1.23) lacZ gene between the replication origin and the IR (35 bp). The method may be used for random mutagenesis and protein engineering. The ssDNA may also be integrated into DNA to give ***triplex*** ***DNA*** of ***increased*** ***stability*** , for use in e.g. AIDS gene therapy. (26pp)